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# RELATIV FREQUENCY OF ENGLISH SPEECH SOUNDS

BY  
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*The text of this investigation is speld in accord with the recommendations of the Simplified Spelling Board. In the material investigated the conventional spelling, as found, has been adhered to strictly thruout.*

*The fonetist and filologist has always been among the first to recognize the immense importance of the movement for reform of English spelling, which commands the united support of the leading language scholars both of England and America. He should be willing to bear his share of the prejudice which some must endure in the course of progress toward a rational orthografty.*

*Simpler Spelling Association, Lake Placid Club, N.Y., wil send ful information concerning this important movement on request.*



## INTRODUCTION

This investigation, based on a sufficient number and variety of modern texts, conducted on sound principles and with scrupulous care, aside from its obvious utility for shorthand and for instruction in reading, is of value to foneticians in that it affords abundant choice material for the study of the adjustment of sound to sound in the syllable. To the linguist it furnishes also a starting point for comparison of one language with another, in respect either to acoustic effect or to the characteristic operations of the vocal organs; and it provides, in its word list, a foundation for comparative estimates of current vocabulary as an index of national civilization. To one interested in the history of speech, or the history of thought, it suggests and facilitates a series of comparisons of present and past aspects of English, whether one consider the language as an aggregate of sound-patterns or as a medium of expression. Multiple are the uses to which these tables may be put. It is to be hoped that many scholars, in many fields, will avail themselves of them.

C H GRANDGENT

HARVARD UNIVERSITY  
January, 1923



## PREFACE

Study of the fonetic facts of English has been heretofore almost wholly qualitativ. Recently, to be sure, there has been a growing series of word counts, purporting usually to determin the most frequently occurring words of the language, but the more searching and for many purposes more significant investigation of the relativ frequency of sillables and of sounds has been quite neglected.

The principal educational use of such word lists thus far has been in connection with that short-sighted misdirection of effort which treats the symptoms insted of the disease of our present indefensible conventional spelling. For this and other more profitable purposes, however, accurate lists of the commonest words of English hav great value, and the present lists ar believd to offer 2 markt advantages. 1: A much greater diversity in selection of material analized givs much wider validity to the results. 2: The accuracy and significance of the lists ar not impaired by an indefinit "judgment factor" in the combining of derivativs and inflected forms. For certain purposes complete separation of all variant forms may be most useful, for others sistematic grouping of the derivativs of each root form; but there is no valid excuse for the usual practise of an indeterminate "personal judgment" mixture of the 2. This study presents both treatments, separately, and separately indext.

All of the quantitativ data on sillables and most of the data on simple sounds ar, so far as I know, unique and of great potential importance in several different fields of study and teaching.

In the pedagogy of writing, tipping, or shorthand the word lists hav great value, whether in providing material from which to organize a textbook or course of study, or in placing the emfasis most effectively in using material

predetermined by other conditions. Lacking such data much wasted effort results from confusion between merely familiar words and words of genuinely common occurrence. In devising, and still more in testing or evaluating reading methods, the syllable and sound data also will be most significant—likewise in the problems of speech correction. Further and varied uses will readily suggest themselves to the educator familiar with the resources of these tables.

All data here presented are of the most fundamental importance for constructing a system of shorthand for general use, which must be in harmony with the phonetic facts of English. These data have been utilized to the fullest extent in devising both the structure and presentation of *Personal Shorthand*,<sup>1</sup> a scientific development of accepted shorthand principles, and of *Demotic Shorthand*,<sup>2</sup> a revolutionary shorthand experiment which abandons 2 of the most firmly established fundamental principles of English language shorthand—single stroke signs for simple sounds, and small signs for vowels—and in so doing achieves a unique and unprecedented simplicity. The primary purpose, indeed, in securing these data was their indispensable importance as the first foundation of any scientific study of shorthand problems, but particular pains were taken to avoid specializing the investigation to this end, for the increased value for shorthand purposes would have been comparatively slight, while the more general value of the results for other phonetic, philologic, and educational purposes would have been materially reduced.

For the research laboratory of the engineering or manufacturing corporation dealing with such acoustic devices as the telephone or phonograph, these analytic quantitative data provide important material for study of the most efficient or effective transmission or reproduction of speech sounds.

<sup>1,2</sup> Both superseded by the Dewey Shorthand series of textbooks, published by Dewey Shorthand Corporation, Lake Placid Club, N.Y.; distributed also by Pitman.

Finally, as Professor Grandgent has pointed out in his introduction, the establishment of reliable quantitative data as to the simple sounds and commoner sound combinations of English throws a new and valuable light on the studies of the fonetist, and affords material for a new and profitable field of investigation into the tendencies of language development.

In addition to the varied uses of the data here reported, the fonetic print alphabet itself, adapted from the Revised Scientific Alphabet for this investigation, and adopted subsequently by the Simplified Spelling Board for indicating pronunciation in its various publications, offers certain practical advantages in connection with the problem of fonetic spelling reform: in particular combining the least practicable degree of typographic strangeness with that minimum degree of fonetic precision necessary for general popular use.

The clerical work of the investigation, which required more than 3,000 hours, was performed chiefly by 4 different assistants, at 3 different places — New York, Lake Placid Club, and Cambridge — at intervals during the past 4 years. Under the circumstances minor errors in the recording or manipulation of data have been inevitable. Where necessary or desirable for purposes of comparison, such errors have been reconciled in preparing this report. No such adjustment has affected any significant figure as much as .1 of 1%, and most have affected such figures less than .01 of 1%.

Particular acknowledgment is due my ablest assistant, Miss Frances Wilson, who performed much of the more difficult fonetic classification and tabulation of the original investigation, and subsequently assisted me with the final checking, revising, reconciling and copying of the greater part of the data here presented.

GODFREY DEWEY

CAMBRIDGE, MASS  
January, 1923

## PREFACE TO THE REVISED EDITION

In the 27 years since this study was first published, it has abundantly justified the closing lines of Professor Grandgent's introduction which appears on page v. Altho the modest first edition has been out of print for a dozen years, I have had reports of its use for as varied purposes at as widely scattered points as the teaching of English in Japan, the breaking of cipher codes in British India, developing an improved typewriter keyboard in Austria, the development of Zachrisson's Anglic [a form of world English spelling] in Sweden, and the development of Ogden's Basic English in Great Britain. All these are in addition to the more obvious primary purposes of the study in connection with my own shorthand construction and the problems of simpler spelling and phonetics. It may be added that both Pitman in Great Britain and Gregg in the United States have used this study, and quoted it as an authority, in the preparation or revision of shorthand textbooks.

My own constant use of these data over a series of years quickly revealed the considerable value of expanding Table 9 to show for each of the 1370 commonest syllables how often it occurred initially, medially, or finally in a word, or as a word by itself. This expansion has therefore been published in this revised edition as Appendix C. In addition, Appendix D gives two brief tables of *letter* frequencies; which, while falling outside the declared scope of the study, give a valuable check on the frequencies commonly assigned to the lower case letters in the printer's font, and provide an accurate and incontrovertible basis for estimating the saving to be effected by any proposed form of phonetic spelling for English.

So far as practicable, the errors discovered in the first edition have been corrected where they occur. Where the same error occurs in several places, or its correction would throw out column footings or cumulative totals, it has been identified by an encircled number referring to an errata sheet at the end of the volume.

GODFREY DEWEY

LAKE PLACID CLUB, N.Y.  
January, 1950

# CONTENTS

## Part 1 Preliminary Discussion

	PAGE
Purpose . . . . .	3
Previous investigations . . . . .	3
Material and methods. . . . .	8
Table 1 Material analyzed . . . . .	8
Table 2 Incidental data . . . . .	14

## Part 2 Words

Explanation and summary. . . . .	17
Table 3 Particular words, in order of frequency . . . . .	19
Table 4 Root words, in order of frequency . . . . .	19
Table 5 1,027 commonest particular words, in alfabetic order . . . . .	31
Table 6 1,131 commonest root words, in alfabetic order . . . . .	31

## Part 3 Syllables

Explanation and summary. . . . .	45
Table 7 220 commonest syllables, in order of frequency . . . . .	47
Table 8 220 commonest syllables, clast by vowels, in order of frequency under each vowel. . . . .	48
Consonant compounds. . . . .	50
Table 9 1,370 commonest syllables, clast by vowels, in order of frequency under each vowel . . . . .	51
Table 10 Summary of Table 9. . . . .	59
Table 11 1,370 commonest syllables, in fonetic order . . . . .	60
Table 12 Summary of Table 11 . . . . .	82
Table 13 1,370 commonest syllables, in reverse fonetic order —riming dictionary order . . . . .	84
Table 14 Summary of Table 13 . . . . .	118

## Part 4 Sounds

Discussion . . . . .	123
Table 15 Relativ frequency of the simple sounds of English, on 48 sound basis, in fonetic order . . . . .	125
Reduction to minimum precision basis . . . . .	126
Table 16 Relativ frequency of the simple sounds of English, on 41 + 1 sound basis, in fonetic order . . . . .	128

Table 17	Same, on 41 + 1 sound basis, in order of frequency, analyzed to show frequency of occurrence in each position in syllables and in words . . .	130
Table 18	Relativ frequency of the simple sounds of English, on 40 sound basis, in order of frequency . . .	132

### General Summary

Predominance of commonest words, syllables, and sounds. . .	133
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### Appendix

Appendix A	The S S B fonetic key alfabet . . . . .	135
Appendix B	Consonant compounds of English. . . . .	139
Explanation and summary . . . . .		140
Table B1	57 preceding consonant compounds and consonants, in fonetic order, with key words. . .	141
Table B2	57 preceding consonant compounds and consonants, clast. . . . .	142
Table B3	51 syllabic consonant compounds and consonants, in fonetic order, with key words . . . . .	143
Table B4	51 syllabic consonant compounds and consonants, clast. . . . .	144
Table B5	182 following consonant compounds and consonants, in reverse fonetic order — rining dictionary order — with key words . . . . .	145
Table B6	182 following consonant compounds and consonants clast. . . . .	147
Appendix C	Expansion of Table 9	
Table C	1,370 syllables, clast by vowels, showing initial, medial, final, and word occurrences of each . .	149
Appendix D	Letter frequencies. . . . .	183
Table D1	Relativ frequency of letters in English Arranged in alfabetic order. . . . .	184
Table D2	Relativ frequency of letters in English Arranged in order of frequency, with analisis of position of occurrence in words . . . . .	185
Addenda and errata . . . . .		186



## Part 1—Preliminary Discussion



## Part 1

### Preliminary Discussion

#### *Purpose*

The object of this study was to determine the relative frequency of occurrence, in good English, as written and spoken today, of the various simple sounds and commoner sound combinations — syllables and words — of the English language.

#### *Previous investigations*

Previously published investigations have dealt almost wholly with relative frequency of words, and too often have been specialized, at least in their selection of material for analysis if not in their manipulation or presentation of data secured, for some particular purpose. The more important published word counts are listed below, in chronological order, with brief comment.

Knowles, Rev J, *The London point system of reading for the blind*, London, 1904.

This list is based on analysis of 100,000 words of "passages from the English Bible and from various authors"; and gives, in order of frequency, with frequency of each, the 353 commonest words (occurring 25 times or more).

Eldridge, R C, *Six thousand common English words, their comparative frequency and what can be done with them*, Niagara Falls, N Y, 1911.

This list, the only word count published complete, so far as I can find, is an analysis of 34,989 words from 4 issues of 4 different Sunday newspapers published in Buffalo in July and August, 1909; and gives in order the frequency of every word, 6002 different words, of which the most frequent 750 constitute over 75% of the whole material analyzed.

#### 4 *Relativ Frequency of English Speech Sounds*

Ayres, Leonard P, *The spelling vocabularies of personal and business letters*, Russell Sage Foundation, New York, 1913.

This tabulates 23,629 words from 2,000 short letters written by 2,000 people; finding 2,001 different words and reporting the frequency of the more common.

Cook, W A, & O'Shea, M V, *The child and his spelling*, Bobbs-Merrill, 1914.

This list is based on 200,000 words from the family correspondence of 13 adults. Several alphabetic lists, with frequencies, are given, showing 186 words used by all 13 correspondents, 577 words used by a majority of the correspondents, etc; but no clear statement is made, or obtainable without complete retabulation, as to the most frequent words or their combined frequency. Only 5,200 different words are found in the total 200,000.

Jones, W Franklin, *Concrete investigation of the material of English spelling*, University of South Dakota, 1914.

This list tabulates 4532 different words, occurring in about 15,000,000 words of specially written grade themes, according to the grade in which each was first used by at least 2% of the students, but gives no more direct information as to relativ frequency. The investigation lists also 100 spelling demons, or the 100 words of English most often misspelled.

Ayres, Leonard P, *A measuring scale for ability in spelling*, Russell Sage Foundation, New York, 1915.

This list, much the most widely quoted at the present time, is based on the material of the first 4 lists above cited, properly weighted and combined and reduced to a basis of occurrences per 100,000 words. Ayres says: "The aggregate amount of written material analyzed in securing these results was approximately 368,000 words, written by some 2,500 different persons. More than  $\frac{2}{3}$  of the material consisted of personal and business letters."

Ayres' list gives in order of frequency, with frequency of each per 100,000 words, the 1000 commonest words, which make up 91,899 per 100,000; the 100 commonest making up 59,591. Owing no doubt to lack of any equally accurate and comprehensive count based on more diversified material, Ayres draws altogether too sweeping conclusions as to the percentage importance in all or general matter of the commonest words which he reports.

16 spelling scales, *Teachers College Record*, v 21, nr 4, (Sept 1920).

This investigation lists in alphabetic order, with frequencies, the second and third thousand commonest words derived from the material used by Ayres, above noted. Ayres rightly points out that the 1000 commonest words represent about the farthest limit at which any statement as to the commonest words has general significance independent of the particular material investigated.

Thorndike, Edward L, *The teacher's word book*, Teachers College, Columbia University, 1921. Discussed in article *Word knowledge in*

the elementary school in Teachers College Record, vol 22, nr 4, (Sept, 1921).

"The teacher's word book is an alphabetical list of the 10,000 words which are found to occur most widely in a count of . . . (about 4,565,000 words). 41 different sources were used.

"A measure of the range and frequency of each word's occurrence is given by the credit-number following it." Elsewhere it is stated: "The reader is asked to accept arbitrarily these credits since an explanation of the method by which they were obtained is too involved to be given here."

This latest publication becomes increasingly unsatisfactory the more closely it is examined. The heterogeneous selection of material is by no means representative of anything in particular, such as the words most used by school children or by adults, in reading or in writing; and as representative of everything in general is scarcely more defensible. Furthermore, as Ayres\* rightly and clearly pointed out in 1915, beyond the 500 or at most the 1000 commonest words, no statement of the inherently commonest words of English, independent of the particular material analyzed, is possible.

The complex credit-number scheme by which the quantitative data are reported is glaringly defective and misleading, with respect to the most common words at least. Compare Thorndike's rating and Ayres' per cent for the 6 commonest words of the present investigation, together making up over 20% of all words found:

Word	Dewey %	Ayres %	Thorndike rating
the . . . . .	7.3	6.4	208
of . . . . .	4.0	3.4	205
and . . . . .	3.3	3.4	210
to . . . . .	2.9	3.2	208
a . . . . .	2.1	1.9	208
in . . . . .	2.1	1.9	211
(For the least frequent of the 1000 commonest words . . . . .)	.011	.012	49)

Space forbids further comment, but in other important particulars, including an express or implied confidence in the results not warranted by the basic conditions, this latest and most extended word count is open to serious criticism.

- (1) There are, in addition to the above, several unpublished word counts, of which the earliest and best diversified is that made by Melvil Dewey, about 1900, as a basis for his notehand list of 100 abbreviations for the most common words. This counted 60,000 words, in twelve 5000 word selections from standard English literature, but

\* A measuring scale for ability in spelling, page 9.

unfortunately did not itemize the infrequent words counted, and so could not be used as a basis for analysis of syllables and sounds.

The enormous amount of time and effort expended on such studies as Cook & O'Shea, Jones, Ayres, etc, which investigate and attempt to provide objective measurement of the difficulties of the conventional English spelling, must be included among the conspicuous wastes, in education, even more than in commerce and international relations, for which our present English spelling is responsible. In view of the consensus of all competent authority as to the anomalous and indefensible character of our present orthography, such effort is fairly comparable to the establishment at a grade crossing of a modern emergency hospital, instead of regrading the crossing to eliminate the hazard.

The conspicuous defect of most of the foregoing word counts is insufficient diversity of material to assure a representative character. It was for this reason principally that I considered it necessary to make my own word count of 100,000 words of carefully diversified material, instead of basing my sound and syllable analyses on word counts already available. The soundness of this decision is strikingly emphasized by comparing the final summary of the Cook & O'Shea count above noted, which finds only 5,200 different words in 200,000, with my own results which find 10,161 different words in 100,000.

A warning should be inserted here against attempting to compile data with respect to syllables or sounds on the basis of any list of commonest words only, however good. It is an interesting and significant fact that some of the commonest syllables of the language scarcely occur among the 500 or even 1000 commonest words, but owe their importance rather to occurrence in many different words each relatively infrequent. This is particularly true of prefixes, suffixes, and other combining forms of Latin or Greek origin, whereas in any short list of commonest words short and Anglo-Saxon words predominate. The result, as proved by our analyses not here reported, is that analytic data based on commonest words *only* will give,

inevitably, a seriously distorted picture of the language as a whole.

With respect to syllables there exist no previous reliable data on even a small scale. Various fragmentary and unsupported statements occur in the literature of shorthand, but none give evidence of any adequate or dependable basis, and many betray a naive ignorance of the very nature of a syllable; as in the case of one author, not yet extinct, who gravely treats as a syllable *any* combination of 2 letters — and bases his system on the treatment!

The literature of shorthand contains similar fragmentary statements with respect to sounds, which agree chiefly in recognizing the preponderance of the 3 consonants, n t r, which Isaac Pitman called "the bones of the shorthand skeleton." The more frequent half of the consonants in these statements will be found to agree fairly well in selection, though not in arrangement, with each other and with the facts; but with respect to the vowels, which have always constituted the weak point of English shorthand, owing largely to our intricate and disorderly spelling, such statements are altogether unreliable.

There exists however one statement of the relative frequency of the simple sounds of English wholly scholarly and, with certain limitations, reliable. This was published in 1874 by William Dwight Whitney, in an essay entitled *The elements of English pronunciation*.<sup>\*</sup> It is based on analysis of 10,000 sounds, 1,000 each from 10 literary classics, 5 prose and 5 poetry, in accord with his own pronunciation. Professor Whitney was certainly entitled to take his own pronunciation as a standard, but unfortunately this procedure makes impossible any clear comparison with the present investigation, for the phonetic basis adopted differs just enough to make definite correlation of his results with the present series impossible. For the consonants, which admit of much closer comparison, differences of 10 to 20% are the rule, with a few much greater or smaller discrepancies; indicating clearly that 10,000 sounds afford much too narrow a basis for definite general conclusions.

<sup>\*</sup> Oriental and linguistic studies, p 202-276, Scribners, 1893.

In general it may be said that except for lists of the 100 or 1000 commonest words, which comparisons show to be based on too restricted selection of material, reliable data for this whole field have been conspicuously lacking.

### *Material and methods*

Study of previous investigations indicated that 100,000 words of material would, if sufficiently diversified, furnish data adequate for the purposes desired. 10,000 words would perhaps have sufficed to furnish reliable data on the simple sounds, but for the sound combinations, particularly the syllable combinations, for which no reliable comparative data were available, 100,000 words seemed necessary, and sufficient.

The first step therefore was to select 100,000 words of connected matter adequately representative of good English as used — written, spoken, and printed — today. This definition should be kept in mind in examining the table of selections which follows; as it accounts for the omission of Shakespeare, and the literary classics of the 17th, 18th, and early 19th centuries, which however widely read do not represent the *usage* of today.

TABLE 1

## MATERIAL ANALYZED

100,000 words of connected matter (excluding numerals and proper names), representative of English as written and spoken today; no single source contributing more than 5,000 words.

	<i>Words</i>
15% newspaper editorial English	
New York Tribune.....	5,000
Boston Evening Transcript.....	5,000
Los Angeles Daily Times.....	5,000
15% newspaper news English	
Chicago Daily Tribune.....	5,000
Kansas City Star.....	5,000
Atlanta Constitution.....	5,000
15% modern fiction	
5% novel	
Winston Churchill ( <i>The Crisis</i> ).....	2,500
William Allen White ( <i>A Certain Rich Man</i> ).....	2,500



5%	short story	
	Rudyard Kipling (The Day's Work).....	2,500
	Mark Twain (The American Claimant, etc).....	2,500
5%	drama	
	William Dean Howells (The Mouse-trap, etc).....	2,500
	Clyde Fitch (The Stubbornness of Geraldine).....	2,500
10%	modern American speeches	
	Abraham Lincoln.....	5,000
	Theodore Roosevelt.....	2,500
	Woodrow Wilson.....	2,500
5%	personal correspondence	
	Richard Harding Davis.....	2,500
	Robert Louis Stevenson.....	2,500
5%	business correspondence	
	5 manuals of tipewriting, business English, and short-hand — 1,000 words each.....	5,000
5%	modern advertizing	
	19 advertizements representing leading advertizers, mediums, and agencies.....	5,000
5%	religious English	
	Holy Bible (St Mark 1:1—).....	1,000
	Henry Ward Beecher (Sermons).....	1,000
	Phillips Brooks (Sermons).....	1,000
	Christian Herald (editorial).....	1,000
	Catholic News (editorial).....	1,000
5%	(popular) scientific English	
	Scientific American.....	3,000
	Science.....	1,000
	Popular Mechanics.....	1,000
5%	modern 'special articles'	
	Literary Digest.....	1,000
	American Magazine (2).....	2,000
	Outlook.....	1,000
	Independent.....	1,000
5%	magazine editorial English	
	Independent.....	1,000
	Atlantic Monthly.....	1,000
	New Republic.....	1,000
	Pictorial Review.....	1,000
	American Magazine.....	1,000
5%	Saturday Evening Post	
	100 words top second reading matter column, 50 consecutive pages.....	5,000
5%	Literary Digest	
	Similar mechanical sampling.....	5,000
	Total number of words analyzed.....	100,000

The stages of the investigation may be subdivided into: 1) Counting, recording, arranging, and listing the 100,000 words, 2) Transcribing the different words recorded in a fonetic notation based on the Revised Scientific Alfabet, 3) Analizing this fonetic transcription with respect to syllables, reducing the data thus secured from the medium precision (48 sound) basis of the Revised Scientific Alfabet to the minimum precision (41 sound) basis of the fonetic print alfabet adopted; arranging, charting, and summarizing the results in various ways, 4) Similar analisis, arrangement, and charting with respect to separate single sounds.

The word counting stage was expedited and checkt as far as possible by mecanical and other aids, including specially printed record cards, Veeder counters, Rand card holders, Smith steel signals, and a special card ledger desk. This stage, with the fonetic transcription on the original cards which accompanied it, required in all about 1200 hours. The methods used resulted in an error of not more than 3 words in any 5,000 word selection, and of only 3 words for the final total of 100,000.

In this basic count every variant of a single root was treated as a separate word; e g *large*, *larger*, *largest*, *largely* were treated as 4 separate words. This was of course essential to the analisis of syllables and sounds to follow. The 10,119 different word cards secured on this basis were arranged in order of frequency, and the 1,027 commonest which occurd more than 10 times each, listed, forming Table 3, the list of *Particular words* by frequency, which totals 78,633. These 1,027 cards were also arranged in alfabetic order and listed, forming Table 5, the index list of *Particular words*.

While this separate consideration of all variant forms was essential for the analisis to follow, the relativ frequency of the more common words grouping together all common variants of one root, is equally interesting and for some purposes more significant. The entire body of cards for particular words was therefore rearranged group-

ing † variants together ; \* single analitic cards substituted for all groups totaling over 10 occurrences, and all cards now over 10 arranged and listed in order of frequency and in alfabetic order, forming the *Root words* lists, Tables 4 and 6, which parallel the *Particular words* lists above noted. In the *Root words* lists number in colum at left shows combined frequency, while number following / at right shows number of different forms which make up the total; omission of this / and number indicating that the word occurd only in the form appearing in the list.

For the second stage it was necessary to hav: a) a definit authority for pronunciation; b) an explicit and unmistakable fonetic notation; and c) particularly for the third and fourth stages to follow, a definit linear order for the fonetic alfabet.

The Standard Dictionary (Funk & Wagnalls, New York) was chosen as the only possible authority for such an investigation by reason of its use of the Revised Scientific Alfabet (popularly known as the N E A key alfabet) for indicating pronunciation. The uncouth and obsolete "Webster" notation, quite similar in the other American dictionaries, misleading and objectionable for any fonetic purpose, is quite impossible as a basis for such an investigation, for on the one hand its complex and cumbersome diacritic notation represents the avowedly same sound in several different ways, while on the other it indicates certain differences of sound not merely subtle but according to the most competent authority non-existent. Murray's New Oxford Dictionary, using ‡ the International Fonetic Association alfabet, was not completed, and would in any case hav conformd les closely to American usage.

\* 20 of the commonest suffix variants so groupd were

-s	-(a)tion(s)	-ive	-al
-ed	-ment(s)	(e)th	-ance
-ing(s)	-est	ful	-y
-er(s)	-(e)n	less	-ity
-ly	-ant	-ness	-able

Combinations such as *drive*, *driven*, in which a markt change in the sound of the root takes place, were *not* made.

† suffix.

‡ substantially.

The principal defect of the Revised Scientific Alphabet, for the particular purposes of this analysis, was its use of 4 complex digraf ligatures for the 4 consonant sounds of *thin then ship chap*, and its writing of the vowel diphthongs by their component elements, interfering seriously with the mechanical ease and certainty of identifying and distributing syllables by their single explicit vowel element. These difficulties are fully overcome in the fonetic alphabet adopted for this investigation, which is set forth in detail in Appendix A. This alphabet is based on careful study of all important previous attempts at a fonetic notation for English, and extended correspondence and conference with the ablest fonetists of the United States, including particularly Professor Raymond Weeks of Columbia and Professor Charles H. Grandgent of Harvard, both of whom were of great assistance in determining this notation and the question of linear order following. In view of its subsequent adoption by the Simplified Spelling Board, for indicating pronunciation in its various publications, it may be designated as the S S B key alphabet.

No definite linear order for a fonetic notation has been established by competent authority. The nearest approach to an accepted order is found in the usual presentations of the alphabet of Pitmanic shorthand, which proceed in general: from consonant to vowel to diphthong; from explodant to continuant consonant groups, and from palatal to labial vowel groups; from front to back in point of articulation of consonants, from back to front in vowels; from surd to sonant in consonant pairs, from short to long (sometimes from long to short) in vowel pairs; with the 4 vowel diphthongs usually distinguished by their latter elements. These tendencies, useful for shorthand presentation, were carefully considered in establishing the definite order shown in Appendix A. This appendix will repay careful study in interpreting the results hereafter presented.

The fonetic transcription from Key 1 of the Standard Dictionary to the word cards did not make the reduction from 48 to 41 sounds referred to in Appendix A. The 7 additional sounds interpolate readily in the linear order,

as will appear in Table 15 (page 125) which gives the frequency of the 48 sounds in fonetic order.

The preferred or first of alternative pronunciations was used uniformly.

The third stage, analysis by syllables, which required, including final tabulation of results, about 1080 hours, was based on the *Particular word* cards secured by stages 1 and 2; each card now containing among other data the total frequency, conventional spelling, and fonetic transcription of one word. Specially printed analysis cards, on which entries were made with a set of 100 rubber stamps numbered from 0 to 99, were used. The analysis was arranged to determine for each syllable not only its total frequency of occurrence but also how often it occurred initially, medially, or finally, or alone in words.

Immediately on completion of the syllable analysis above described the syllable cards were combined on a 41 sound basis, eliminating the 7 finest distinctions (see Appendix A) of the 48 sound dictionary key. This step gave about 4,400 different syllable cards, showing a total of about 143,000 syllables for the 100,000 words. The 1370 most frequent of these syllables forming 133,586 syllable occurrences, or over 93 % of the total, form the basis of the syllable data hereafter reported.

The procedure of the fourth stage, analysis by sounds, which required in all about 720 hours, was similar to that above described for the syllable analysis. Two complete independent analyses by sounds were made, the first distinguishing the occurrence of sounds initially, medially, or finally, or alone in *syllables*; the second distinguishing their occurrence similarly in *words*. The total results of these 2 analyses gave an important and necessary check, the only check possible, on this stage of the investigation; while the separate data of both analyses are profoundly important as a guide to shorthand construction.

The total results of the sound analysis are reported on a 48 sound, a 41 sound, and a 40 sound basis, as will be described in the section on sounds. The results of the 2 more detailed analyses, showing position of sounds in syllables or words, are reported on a 41 sound basis only.

14 *Relative Frequency of English Speech Sounds*

Incidental data on the occurrence of proper names, numerals, abbreviations, punctuation, etc., are summarized briefly in Table 2 following.

TABLE 2. INCIDENTAL DATA

(not included in count of 100,000 words analyzed)

Proper names.....	6,404
Numerals.....	2,102
Titles & salutations	
Mr.....	148
Mrs.....	44
General.....	44
Sir.....	33
Secretary.....	28
Miss.....	25
Judge.....	18
Dr.....	14
Gentlemen.....	13
Colonel.....	12
Other miscellaneous.....	<u>203</u>
	582
Abbreviations (not including titles)	
Co.....	16
No.....	13
Other miscellaneous.....	<u>81</u>
	110
Foreign words (chiefly French & Latin)	42
Punctuation	
".....	5,951
'.....	5,275
-.....	2,416
" " (1,108 x 2).....	2,216
*.....	835
—.....	540
;.....	442
?.....	330
!.....	304
( ) (122 x 2).....	244
:.....	218
\$.....	76
&.....	23
/.....	16
%.....	13
Other miscellaneous.....	<u>13</u>
	18,912
Number of sentences.....	5,446
Average length of sentence, including proper names but excluding numerals, etc: $106,404 \div 5,446 = 19.6$ words (about)	

## Part 2—Words





## Part 2

### Words

#### *Relative frequency of the commoner words of English*

Tables 3 and 4 following show, in parallel columns, the frequency of every word occurring oftener than 10 times in 100,000 words: the left column, *Particular words*, considering each variant form as a separate word; the right column, *Root words*, grouping together all ordinary variants of one root.\* The figures following the bar at the extreme right show the number of variant forms so grouped in each case.

Summarizing Table 3, *Particular words*:

9 words form over 25 % of the whole 100,000			
69	"	50 %	"
732	"	75 %	"

or

10 words make up 26,677 of the whole 100,000			
100	"	54,303	"
1,000	"	78,336	"

and

1,027 words occur over 10 times, totaling 78,633 words.

In the *Root words* table:

1,131 words occur over 10 times, totaling 87,358 words.

For the 1,000 commonest words, the *Root words* table exceeds the *Particular words* table by less than 10%, a difference which decreases progressively for any lesser number of words.

These figures I consider amply to justify the general conclusions that, of any specimen of connected English sufficiently long to be fairly representative:

<i>The 10 commonest words here reported will form over 25%</i>			
②	100	"	50%
	1,000	"	75%

\* See page 10-11.

## 18 *Relative Frequency of English Speech Sounds*

The first conclusion will undoubtedly hold for specimens as short as 1,000 words, the second should hold for 10,000 words or more, the third may or may not hold strictly for reasonably diversified material of 100,000 words or more. Beyond this point no *general* statement as to the most common words can be developed, even by counting 1,000,000 words or more,\* for the nature of the words encountered is no longer common to all grammatical discourse but varies more and more widely according to the subject matter of the material counted.

The figures here reported clearly indicate the too sweeping nature of previous conclusions as to the frequency or importance of the 1,000 commonest words—conclusions based on counts of not sufficiently diversified material.

Tables 3 and 4 of words in order of frequency are immediately followed by Tables 5 and 6 of the same words in alphabetic order, also in parallel columns and showing frequencies.

\* See statement by Ayres, referred to on page 5.

TABLE 3

7,310	the
3,998	of
3,280	and
2,924	to
2,120	a
2,116	in
1,345	that
1,216	it
1,213	is
1,155	I
1,035	for
846	be
839	was
782	as
775	you
727	with
680	he
643	on
617	have
600	by
589	not
585	at
572	this
542	are
529	we
517	his
504	but
478	they
466	all
458	or
454	which
445	will
433	from
411	had
390	has
368	one
331	our
330	an
③ 328	been
321	no
315	their
306	there
305	were
300	so
296	my
263	if
257	me
253	what
252	would
248	who

46,067 [50]

TABLE 4

7,310	the
3,998	of
3,280	and
2,924	to
2,120	a
2,116	in
1,488	it /4
1,367	that /3
1,236	I /5
1,224	is /2
1,035	for
956	be /3
850	was /2
808	you /5
782	as
727	with
687	he /3
658	have /3
643	on
600	by
589	not
585	at
572	this
549	are /2
537	we /3
517	his
504	but
495	they /4
467	all /2
464	will /6
458	or
454	which
433	from
414	had /2
390	has
389	one /3
357	our /3
330	an
329	been
329	my /2
329	there /3
321	no
319	their /2
307	were /2
300	so
285	him /2
283	your /4
277	can /4
267	would /2
263	if

46,922 /101

TABLE 3

237	when
234	him
228	them
222	her
214	war
214	your
210	any
210	more
210	now
208	its
205	time
204	up
203	do
203	out
197	can
194	than
189	only
188	she
170	made
169	other
166	into
164	men
163	must
163	people
161	said
160	may
156	man
153	about
153	over
152	some
152	these
146	two
145	very
139	before
134	great
133	could
132	such
131	first
129	upon
124	every
124	how
123	come
123	us
120	shall
118	should
115	then
113	like
113	well
111	little
111	say

54,303 [100]

TABLE 4

262	them /2
260	what /2
257	me
248	who
239	do /2
237	when
234	her /3
232	time /2
217	war /2
210	any
210	more
210	now
207	up /3
206	out /3
194	other /2
194	she /3
194	than
191	say /4
189	only
180	people /3
178	great /5
175	day /4
171	come /4
171	know /4
170	made
168	men /2
168	must /2
167	man /5
166	into
166	make /6
164	take /4
162	may /2
161	said
153	about
153	over
152	some
152	these
152	year /2
147	could /2
146	how /2
146	two
145	very
144	go /3
142	see /3
139	before
137	such
131	first
129	like /7
129	upon
127	give /4

55,899 /214

## Relative Frequency of English Speech Sounds

TABLE 3

108	because
108	being
108	under
107	after
107	here
106	good
105	make
105	most
104	many
104	much
104	those
104	way
103	see
103	world
102	know
101	day
101	never
100	did
99	new
95	down
94	even
94	long
93	years
92	country
91	business
91	right
89	get
89	life
86	just
④ 86	take
83	where
83	work
82	things
79	part
78	through
78	while
77	last
77	might
75	am
75	back
75	old
75	own
75	three
73	against
73	go
73	think
71	came
71	matter
70	days
70	without

58,795 [150]

TABLE 4

127	work /7
126	thing /2
125	good /3
124	every
123	did /2
123	us
120	shall
119	should /2
119	way /2
117	after /3
117	get /3
117	world /4
115	then
113	well
112	little /2
111	country /5
110	here /2
110	just /4
110	long /7
110	right /6
109	under /2
108	because
107	most /2
104	many
104	much
104	new /4
104	those
101	never
100	use /6
99	think /3
98	down /3
97	part /3
94	even
94	through /2
92	state /6
91	business
90	life /2
90	own /6
88	today /2
85	call /6
85	fact /4
85	last /4
85	place /4
84	large /4
84	might /5
84	old /4
83	back /5
83	want /4
83	where
82	interest /4

61,055 /367

TABLE 3

69	also
68	public
④ 68	today
68	yet
67	don't
67	same
67	thought
63	each
63	far
63	home
63	put
62	again
62	always
61	nothing
61	present a & n
60	between
60	going
60	money
60	per
59	once
59	peace
59	woman
59	year
58	another
58	away
58	cannot
58	fact
58	half
58	still
57	give
57	government
57	power
57	too
56	yours
55	found
54	few
54	possible
53	does
53	food
53	house
53	less
53	oh
52	best
52	case
52	line
52	place
52	says
52	since
51	ever
51	himself

61,717 [200]

TABLE 4

81	hand /4
81	high /4
79	line /2
79	while /2
78	govern /9
76	matter /2
75	am
75	ask /4
75	seem /3
75	thought /3
75	three
73	against
72	gun /3
72	mean /4
72	possible /4
72	real /4
72	show /5
71	came
71	case /2
71	home /3
71	order /4
71	tell /3
70	act /8
70	without
69	also
69	cent /2
69	look /4
69	need /6
69	public /2
68	name /5
68	power /3
68	present/3a & n
68	yet
67	don't
67	pay /6
67	put /3
67	same
67	ship /7
66	house /3
64	far /2
64	save /3
63	does /2
63	each
63	loss /3
62	again
62	always
62	fight /3
62	month /4
62	peace /3
61	nothing

64,538 /517

TABLE 3

51 let  
51 military  
51 tell  
51 why  
50 big  
50 got  
50 until  
50 went  
49 find  
49 five  
48 dear  
48 interest  
48 left  
48 order  
48 service  
48 set  
48 steel  
47 women  
46 among  
46 front  
46 given  
46 hand  
46 high  
46 means  
46 night  
46 small  
46 taken  
45 both  
45 morning  
45 used  
45 whole  
44 city  
44 enough  
44 gun  
44 next  
44 thing  
44 want  
43 army  
43 off  
43 pay  
43 side  
43 stand  
42 purpose  
42 soon  
42 whose  
41 during  
41 saw  
41 young  
40 believe  
40 call

64,004 [257]

TABLE 4

61 stand /3  
60 between  
60 money  
60 per  
60 true /2  
59 believe /5  
59 dear /5  
59 nation /3  
59 once  
59 report /6  
59 woman  
58 another  
58 away  
58 follow /4  
58 half  
58 live /4  
58 purpose /2  
58 still  
57 army /3  
57 cause /4  
57 find /3  
57 kind /4  
57 law /6  
57 too  
56 few /2  
56 found /2  
56 less /4  
56 letter /2  
56 train /5  
55 carry /4  
55 food /2  
55 general /4  
55 hour /4  
54 big /3  
54 eye /3  
54 form /8  
54 service /3  
54 set /3  
54 small /3  
54 turn /4  
53 number /4  
53 oh  
53 six /5  
52 best  
52 consider /8  
52 labor /6  
52 love /7  
52 near /4  
52 since  
52 whole /2

67,342 /676

TABLE 3

40 done  
40 fighting  
40 name  
40 situation  
40 something  
40 took  
39 cent  
39 labor  
39 large  
39 mind  
39 water  
38 battle  
38 conditions  
38 it's  
38 statement  
38 though  
37 almost  
37 course  
37 general  
37 nation  
37 several  
37 six  
36 ago  
36 asked  
36 doing  
36 either  
36 gave  
36 letter  
36 seen  
36 state  
36 use v  
35 amount  
35 children  
35 four  
35 full  
35 necessary  
34 books  
34 certain  
34 early  
34 law  
34 themselves  
33 brought  
33 capital  
33 coal  
33 end  
33 eyes  
33 forty  
33 known  
33 myself  
33 really

65,817 [300]

TABLE 4

51 city /4  
51 condition /2  
51 ever  
51 feel /3  
51 let  
51 military  
51 why  
50 certain /3  
50 end /5  
50 girl /2  
50 got  
50 hope /8  
50 pass /4  
50 side /2  
50 until  
50 went  
49 continue /11  
49 five  
49 force /6  
49 front /3  
49 night /2  
49 open /6  
49 pound /3  
49 water /3  
48 care /9  
48 commit /6  
48 left  
48 permit /5  
48 person /6  
48 plan /4  
48 point /3  
48 reason /6  
48 soon /2  
48 steel  
48 women /2  
47 full /3  
46 among  
46 build /7  
46 differ /7  
46 morning /2  
46 read /5  
46 require /5  
45 book /2  
45 both  
45 fail /6  
45 free /3  
45 keep /5  
45 price /4  
45 supply /4  
44 enough

69,751 /852

## Relative Frequency of English Speech Sounds

TABLE 3

33 save
33 told
33 yesterday
32 better
32 called
32 cause
32 feel
32 free
32 girl
32 hands
32 keep
32 love
32 making
32 months
32 need
32 number
32 point
32 rather
32 subject
32 wheat
32 wrong
31 afternoon
31 enemy
31 having
31 kind
31 open
31 real
31 show
31 whether
30 able
30 anything
30 ask
30 become
30 cents
30 dinner
30 face
30 feet
30 hope
30 I'm
30 knew
30 knows
30 look
30 price
30 seems
30 true
30 truly
30 turned
30 twenty
29 committee
29 common

67,368 [350] 71,794 / 1,038

TABLE 4

44 meet /4
44 mind /3
44 move /6
44 next
44 question /4
44 result /4
43 battle /3
43 boy /4
43 off
43 operate /9
42 charge /4
42 direct /8
42 enemy /3
42 idea /2
42 mile /3
42 million /4
42 whose
41 begin /4
41 capital /6
41 during
41 early /3
41 face /3
41 four /3
41 saw
41 situation /2
41 soldier /5
41 young
40 done
40 ease /5
40 increase /4
40 respect /8
40 something
40 subject /4
40 thousand /2
40 took
40 week /2
40 write /5
39 become /3
39 change /4
39 child /4
39 complete /5
39 friend /4
39 hold /5
39 industry /4
39 object /10
39 wrong /2
38 announce /6
38 attack /4
38 children /2
38 clear /7

TABLE 3

29 further
29 future
29 held
29 idea
29 miles
29 past
29 view
28 action
28 along
28 boys
28 complete
28 lost
28 nor
28 result
28 send
28 sent
28 use "
28 whom
28 wish
27 already
27 beginning
27 buy
27 head
27 lines
27 moment
27 office
27 often
27 party
27 quite
27 saying
27 soldiers
27 thousand
27 times
26 hour
26 hours
26 impossible
26 itself
26 makes
26 perhaps
26 pounds
26 seemed
26 special
26 troops
26 value
25 above
25 building
25 different
25 flour
25 hear
25 help

68,721 [400] 73,600 / 1,223

TABLE 4

38 course /2
38 demand /4
38 exist /6
38 head /7
38 necessary /3
38 office /2
38 politic /6
38 though
38 value /5
38 wish /4
38 word /3
37 almost
37 amount /3
37 cost /4
37 drive /4
37 forty /3
37 official /3
37 reach /4
37 remember /4
37 several
37 view /4
36 ago
36 buy /5
36 either
36 express /6
36 farm /6
36 gave
36 help /5
36 inform /4
36 land /4
36 organize /4
36 party /3
36 receive /4
36 trouble /5
36 wheat /2
35 car /2
35 enforce /4
35 perfect /4
35 regard /5
35 special /5
34 destroy /7
34 issue /4
34 late /4
34 loan /2
34 note /5
34 officer /3
34 recent /2
34 speak /5
34 success /5
33 afternoon /3

TABLE 3

25	land
25	loan
25	others
25	sea
25	together
25	week
24	administration
24	behind
24	built
24	child
24	drive
24	electric
24	important
24	indeed
24	information
24	knowledge
24	month
24	note
24	opinion
24	read, <i>present</i>
24	second
24	ten
24	thirty
24	wanted
23	air
23	began
23	care
23	carry
23	charge
23	clear
23	comes
23	coming
23	company
23	didn't
23	eight
23	except
23	force
23	ground
23	guns
23	heard
23	looking
23	mean
23	modern
23	near
23	officers
23	political
23	poor
23	position
23	pretty
23	question

69,901 [450]

TABLE 4

33	base /6
33	brought
33	coal
33	heavy /5
33	import /3
33	moment /4
33	please /3
33	return /4
33	school /4
33	send /2
33	serve /6
33	simple /4
33	sure /3
33	talk /4
33	told
33	yesterday
32	administer /6
32	appear /5
32	better
32	control /5
32	desire /6
32	fire /4
32	play /5
32	propose /5
32	rather
31	bombard /5
31	bring /3
31	common /3
31	effect /5
31	ground /2
31	happen /5
31	hard /7
31	hear /3
31	road /2
31	run /4
31	sea /2
31	secure /6
31	street /2
31	thank /4
31	twenty /2
31	whether
30	able
30	anything
30	attend /6
30	company /3
30	dinner
30	dollar /3
30	employ /7
30	feet
30	field /2

75,182 /1,394

TABLE 3

23	reason
23	received
23	school
23	yes
22	around
22	court
22	department
22	dollars
22	family
22	hold
22	however
22	kept
22	living
22	million
22	offensive
22	official
22	plan
22	pound
22	remember
22	reports
22	taking
22	tea
22	third
22	worth
21	alone
21	can't
21	carried
21	change
21	cost
21	effort
21	evening
21	fight
21	following
21	glad
21	hard
21	heavy
21	hundred
21	list
21	national
21	needs
21	o'clock
21	perfect
21	products
21	proper
21	road
21	room
21	street
21	sure
21	thank
21	that's

70,979 [500]

TABLE 4

30	knew
30	learn /3
30	machine /3
30	mere /2
30	minute /3
30	offense /3
30	picture /3
30	provide /4
30	understand /3
29	body /4
29	cut /4
29	deal /6
29	effort /2
29	entire /2
29	expect /6
29	figure /3
29	further
29	future
29	grow /5
29	happy /5
29	held
29	horse /2
29	particular /3
29	past
29	product /4
29	self /4
29	sit /4
29	trust /5
28	account /5
28	along
28	answer /4
28	electric /2
28	lead /5
28	mother /3
28	nor
28	opinion /2
28	represent /7
28	safe /4
28	sent
28	strange /5
28	use <i>n</i>
28	whom
27	already
27	authority /2
27	bear /5
27	defend /7
27	execute /8
27	final /3
27	leave /4
27	often

76,611 /1,555

TABLE 3	TABLE 4	TABLE 3	TABLE 4
21 trouble	27 patriot /6	19 report	25 system /7
21 truth	27 plain /3	19 seem	25 thirty /2
21 unless	27 pretty /4	19 sense	25 together
21 write	27 quite	19 similar	25 try /2
20 account	27 rate /3	19 stooped	25 watch /3
20 continue	27 wonder /5	19 strength	24 accord /4
20 field	27 worth /3	19 success	24 address /4
20 gone	26 chair /5	19 supply	24 age /3
20 I'll	26 command /9	19 system	24 ally /3
20 I've	26 deliver /5	19 thinking	24 awful /2
20 justice	26 department /3	19 till	24 beauty /3
20 letters	26 discover /6	19 toward	24 behind
20 live v	26 eat /5	19 train	24 built
20 loss	26 establish /5	19 understand	24 collect /10
20 meeting	26 family /3	19 word	24 contract /3
20 met	26 father /3	18 although	24 duty /2
20 method	26 flour /2	18 answer	24 fall /4
20 mother	26 heart /7	18 artillery	24 history /5
20 nature	26 human /4	18 attack	24 hundred /2
20 ourselves	26 immediate /2	18 body	24 indeed
20 pass	26 impossible	18 bonds	24 manufacture /6
20 range	26 method /2	18 cars	24 meat /3
20 regard	26 pack /7	18 cut	24 member /2
20 ships	26 perhaps	18 doubt	24 poor /2
20 sort	26 seven /5	18 duty	24 press /4
20 story	26 strike /3	18 eye	24 room /3
20 talk	26 transport /3	18 fifty	24 second
20 victory	26 troops	18 foreign	24 store /4
20 within	25 above	18 form	24 support /5
19 age	25 agree /7	18 fresh	24 ten
19 attention	25 air /3	18 girls	24 touch /5
19 beyond	25 apply /6	18 heart	24 toward /2
19 bombardment	25 arrive /4	18 history	24 wait /3
19 bring	25 bond /3	18 largest	23 add /4
19 cases	25 concern /4	18 leave	23 admit /5
19 check	25 correspond /5	18 light	23 art /5
19 easy	25 else /3	18 machine	23 bad /2
19 happy	25 evening /3	18 merely	23 began
19 human	25 experience /3	18 news	23 check /3
19 interesting	25 favor /6	18 numbers	23 claim /3
19 least	25 judge /5	18 places	23 court /2
19 material	25 knowledge /2	18 play	23 draw /5
19 meet	25 low /5	18 probably	23 eight
19 memory	25 mine /5	18 problem	23 except
19 milk	25 practical /2	18 rate	23 fear /4
19 oil	25 prepare /4	18 recent	23 heard
19 particular	25 realize /4	18 required	23 limit /4
19 permitted	25 remain /5	18 rest	23 main /2
19 plans	25 sense /5	18 run	23 marry /4
19 ready	25 sort /3	18 ship	23 modern
71,962 [550]	77,896 /1,750	72,877 [600]	79,084 /1,902



TABLE 3

18 simple
18 support
18 town
18 words
17 according
17 announced
17 authority
17 car
17 character
17 cold
17 community
17 control
17 effect
17 enforced
17 everything
17 experience
17 father
17 figures
17 fine
17 forward
17 friend
17 friends
17 goods
17 higher
17 horses
17 instead
17 meat
17 none
17 object
17 parts
17 passed
17 permit
17 president
17 reach
17 return
17 saved
17 self
17 speak
17 strange
17 suppose
17 terms
17 thus
④ 17 to-day
17 total
17 training
17 trust
17 turn
17 win
17 won't
16 affairs

73,730 [650]

TABLE 4

23 motor /6
23 paper /2
23 position
23 problem /2
23 produce /6
23 profit /5
23 purchase /6
23 shell /3
23 suggest /6
23 yes
22 around
22 bank /5
22 decide /4
22 equal /3
22 fine /4
22 fish /7
22 hero /4
22 honor /3
22 imagine /5
22 kept
22 list /2
22 national /2
22 possess /8
22 reduce /3
22 responsible /3
22 seize /5
22 sell /4
22 start /3
22 step /3
22 story /2
22 straight /5
22 strong /4
22 suppose /2
22 tea
22 term /2
22 third
22 ton /3
22 truth /2
22 victor /3
21 addition /3
21 advance /5
21 alone
21 bill /2
21 chief /3
21 citizen /2
21 contain /4
21 danger /4
21 declare /4
21 delay /3
21 develop /4

80,183 /2,070

TABLE 3

16 avenue
16 awfully
16 contract
16 county
16 delay
16 demand
16 else
16 feeling
16 generally
16 getting
16 greater
16 honor
16 issue
16 laws
16 low
16 main
16 members
16 millions
16 minutes
16 nations
16 opportunity
16 ought
16 paid
16 picture
16 plain
16 pleased
16 pleasure
16 property
16 proposed
16 purposes
16 questions
16 reasons
16 recently
16 sight
16 social
16 south
16 stood
16 summer
16 task
16 therefore
16 tons
16 unto
16 whatever
16 white
16 you're
15 act
15 address
15 allies
15 announcement
15 attitude

74,525 [700]

TABLE 4

21 difficult /3
21 doubt /3
21 enter /4
21 equip /3
21 gain /4
21 glad
21 include /4
21 lack /4
21 natural /4
21 nature /2
21 o'clock
21 prevent /5
21 probable /3
21 progress /3
21 proper
21 railroad /3
21 rule /5
21 slave /3
21 spirit /3
21 task /2
21 unless
21 west /3
20 accept /6
20 active /3
20 affair /2
20 arm /4
20 arrange /5
20 capture /3
20 character /3
20 construct /4
20 county /2
20 determine /4
20 faith /4
20 fellow /3
20 fill /4
20 gentle /5
20 gone
20 maintain /4
20 mark /4
20 memory /2
20 met
20 milk /2
20 oil /2
20 principle /2
20 range
20 seek /3
20 serious /3
20 stoop /2
20 strength /2
20 suit /4

81,205 /2,220

TABLE 3

15 available
15 bad
15 bill
15 board
15 consider
15 due
15 efficiency
15 entirely
15 existence
15 failure
15 fellow
15 felt
15 final
15 fire
15 greatly
15 increased
15 industrial
15 industry
15 larger
15 learned
15 losses
15 miss
15 nearly
15 necessity
15 personal
15 please
15 practical
15 progress
15 respectfully
15 safe
15 shells
15 sold
15 transportation
15 vessels
15 ways
15 weeks
15 west
15 won
15 wouldn't
14 across
14 advantage
14 art
14 average
14 basis
14 beautiful
14 certainly
14 chief
14 citizens
14 class
14 command

75,264 [750]

TABLE 4

20 tax /4
20 throw /4
20 town /2
20 win /3
20 within
19 artillery /2
19 beyond
19 camp /3
19 cheap /4
19 class /3
19 close /3 adj
19 deep /5
19 foreign /2
19 fund /3
19 handle /5
19 least
19 liberty /2
19 material
19 mill /2
19 miss /4
19 neighbor /4
19 paint /6
19 president /2
19 provision /2
19 ready
19 refer /6
19 senate /4
19 short /4
19 sight /3
19 similar
19 study /4
19 teach /5
19 till
19 total /2
19 trade /5
19 usual /2
18 although
18 aid /3
18 board /3
18 break /2
18 cold /2
18 community /2
18 count /5
18 critic /7
18 economy /7
18 explain /4
18 fair /4
18 fifty
18 fly /4
18 forward /2

82,146 /2,374

TABLE 3

14 couldn't
14 danger
14 date
14 defender
14 defense
14 distance
14 easily
14 entire
14 equipment
14 established
14 everywhere
14 fell
14 followed
14 immediate
14 moved
14 names
14 ones
14 operation
14 patriotism
14 period
14 person
14 read <i>past</i>
14 region
14 round
14 sat
14 saving
14 sit
14 sometimes
14 spirit
14 standard
14 step
14 strike
14 strong
14 study
14 supplies
14 throughout
14 try
14 various
14 wait
14 wonder
14 written
13 aid
13 altogether
13 armies
13 arrived
13 black
13 boy
13 break
13 broken
13 chair

75,955 [800]

TABLE 4

18 fresh
18 instruct /5
18 light
18 news
18 nine /5
18 offer /5
18 opportunity /2
18 pure /4
18 quick /5
18 remark /5
18 rest
18 sacrifice /3
18 settle /5
18 shape /4
18 social /3
18 standard /3
18 station /3
18 type /2
18 vessel /2
18 voice /3
17 attempt /4
17 avail /3
17 avenue /2
17 bore /4
17 conduct /5
17 confer /3
17 constitute /6
17 cross /4
17 crowd /4
17 date /2
17 defense /3
17 detail /3
17 drink /4
17 everything
17 expense /3
17 expert /2
17 factory /2
17 instance /2
17 instead
17 invest /4
17 market /4
17 measure /4
17 none
17 observe /7
17 pleasure /2
17 raise /5
17 relate /7
17 ring /3
17 section /3
17 south /2

83,016 /2,537

TABLE 3

13	close	<i>adj</i>
13	condition	
13	considered	
13	desire	
13	drawn	
13	facts	
13	fail	
13	farm	
13	fear	
13	foot	
13	forces	
13	gives	
13	ideas	
13	job	
13	kindly	
13	laid	
13	learn	
13	looked	
13	market	
13	minute	
13	motor	
13	neither	
13	neutral	
13	non	
13	orders	
13	paper	
13	persons	
13	press	
13	pressure	
13	provide	
13	provided	
13	reached	
13	red	
13	sacrifice	
13	satisfactory	
13	secure	
13	serious	
13	seven	
13	showing	
13	simply	
13	single	
13	size	
13	table	
13	thousands	
13	touch	
13	trains	
13	twelve	
13	village	
13	weather	
13	willing	

76,605 [850]

TABLE 4

17	table	/3
17	test	/4
17	thus	
17	vary	/3
17	weigh	/5
17	window	/2
17	won't	
17	wound	/4
16	actual	/2
16	advantage	/3
16	attitude	/2
16	beside	/2
16	clean	/5
16	cover	/4
16	custom	/5
16	depend	/6
16	distribute	/4
16	inspire	/6
16	listen	/4
16	necessity	/2
16	north	/3
16	obtain	/3
16	ought	
16	paid	
16	plant	/4
16	property	
16	refuse	/4
16	region	/2
16	round	/3
16	size	/3
16	stood	
16	suffer	/3
16	summer	
16	unto	
16	vote	/4
16	waste	/5
16	whatever	
16	white	
16	wire	/5
16	witness	/5
15	allow	/5
15	baby	/3
15	bed	/2
15	belong	/4
15	broke	/2
15	consume	/4
15	cry	/4
15	democrat	/3
15	die	/3
15	due	

83,814 /2,688

TABLE 3

13	wise	
13	working	
12	addition	
12	advance	
12	apparently	
12	attacks	
12	carbon	
12	causes	
12	changed	
12	claim	
12	confidence	
12	considerable	
12	cooperation	
12	correspondent	
12	cream	
12	declared	
12	demand	
12	difference	
12	direct	
12	driven	
12	excellent	
12	expect	
12	experts	
12	favor	
12	fish	
12	follow	
12	forget	
12	gets	
12	gold	
12	grown	
12	horse	
12	immediately	
12	largely	
12	late	
12	later	
12	liberty	
12	majority	
12	married	
12	measure	
12	mere	
12	middle	
12	mile	
12	native	
12	natural	
12	needed	
12	nobody	
12	normal	
12	officials	
12	ordinary	
12	organization	

77,207 [900]

TABLE 4

15	efficiency	
15	felt	
15	firm	
15	gather	/5
15	gold	/2
15	hill	/4
15	individual	/3
15	influence	/4
15	inquire	/4
15	insist	/5
15	involve	/3
15	job	/2
15	kill	/4
15	lay	/4
15	native	/2
15	neutral	/2
15	practise	/3
15	proceed	/6
15	promise	/4
15	rapid	/4
15	resource	/2
15	sign	/3
15	sold	
15	stay	/3
15	stone	/2
15	stop	/3
15	sweet	/3
15	treat	/6
15	wife	/2
15	won	
15	worse	/2
14	accomplish	/5
14	across	
14	airplane	/2
14	average	
14	black	/2
14	burn	/3
14	comfort	/3
14	conclude	/6
14	contribute	/5
14	defeat	/2
14	distance	
14	division	/3
14	door	/2
14	dream	/4
14	enclose	/3
14	engine	/2
14	everywhere	
14	examine	/4
14	excel	/3

84,545 /2,833

TABLE 3

12 peoples
12 placed
12 possibility
12 prevent
12 principle
12 quickly
12 reported
12 ring
12 section
12 shipment
12 shown
12 sitting
12 speaking
12 spent
12 stage
12 station
12 stop
12 suit
12 taught
12 telling
12 tonight
12 type
12 unknown
12 using
12 usual
12 voice
12 wants
12 works
12 yourself
11 abroad
11 acts
11 afraid
11 agents
11 appeared
11 approximately
11 bear
11 became
11 blue
11 book
11 bore
11 bought
11 bread
11 busy
11 campaign
11 caught
11 construction
11 corn
11 costs
11 credit
11 daily

77,786 [950]

TABLE 4

14 extreme /2
14 fast /3
14 feature /3
14 fell
14 fit /4
14 forget /3
14 improve /5
14 introduce /3
14 mistake /2
14 moral /5
14 mystery /4
14 period
14 quarter /2
14 read <i>past</i>
14 ride /4
14 rush /3
14 sat
14 satisfactory /2
14 single /2
14 sometimes
14 substitute /3
14 tomorrow /2
14 travel /6
14 weather /2
14 winter /3
14 written
14 yard /2
13 achieve /4
13 admire /6
13 agent /2
13 aim /3
13 altogether
13 apparent /2
13 approximate /3
13 article /2
13 assure /5
13 brother /3
13 campaign /2
13 complain /5
13 convince /3
13 copy /3
13 corporation /2
13 degree /2
13 dwell /8
13 earth /2
13 engineer /3
13 estimate /3
13 event /3
13 exceed /4
13 finish /3

85,222 /2,978

TABLE 3

11 deep
11 delivered
11 developed
11 earth
11 election
11 enclosed
11 engaged
11 engine
11 executive
11 existing
11 expected
11 express
11 expressed
11 fair
11 fall
11 fast
11 filled
11 finally
11 follows
11 forth
11 freedom
11 fund
11 gained
11 giving
11 goes
11 greatest
11 happen
11 herself
11 holding
11 I'd
11 immense
11 influence
11 instance
11 involved
11 isn't
11 judgment
11 lack
11 latter
11 longer
11 mental
11 mill
11 move
11 north
11 offices
11 pictures
11 police
11 prices
11 private
11 pure
11 quality

78,336 [1,000]

TABLE 4

13 flag /4
13 foot
13 guest /2
13 income /3
13 indicate /7
13 king /2
13 laid
13 loyal /3
13 majority /2
13 mass /3
13 master /2
13 mental /2
13 mention /2
13 neither
13 non
13 occasion /4
13 occur /5
13 ordinary /2
13 page /2
13 present /3 v
13 pressure
13 previous /2
13 prison /3
13 pull /5
13 quantity /2
13 railway /2
13 recognize /3
13 red
13 share /3
13 sound /5
13 speech /2
13 terrible /2
13 twelve
13 universe /5
13 utter /4
13 vast /3
13 village
13 wide /2
13 wise
12 absolute /3
12 amend /6
12 billion /2
12 blue /2
12 bread /2
12 busy /2
12 carbon
12 close /4 v
12 confidence
12 cooperation
12 corn /2

85,861 /3,104

TABLE 3

II railroads
II responsible
II running
II seeing
II serve
II shape
II shipping
II spring
II staff
II started
II stay
II stone
II straight
II striking
II successful
II sum
II surely
II sweet
II tomorrow
II trade
II trying
II wasn't
II wide
II wife
II wild
II winter
II worse

78,633 [1,027]

TABLE 4

12 cream
12 daily /2
12 devote /3
12 disloyal
12 distinct /4
12 district /2
12 driven
12 east /3
12 exercise /3
12 floor /3
12 fright /5
12 furnish /3
12 hate /3
12 heaven /2
12 hence /2
12 highway /3
12 honest /3
12 ill /3
12 incident /3
12 insure /4
12 manner /2
12 march /3
12 middle
12 nobody
12 normal
12 physical /2
12 program /2
12 protect /3
12 record /5
12 river /2
12 roll /5
12 rub /3
12 seat /3
12 sentiment /3
12 shoulder /2
12 smile /4
12 speed /5
12 spent
12 spoke /2
12 square /3
12 stage
12 submarine /2
12 taught
12 tend /8
12 tire /3
12 tonight
12 tree /2
12 trench /2
12 union /2
12 unknown

[1,050] 86,461 /3,234

TABLE 4

12 visit
12 wage /4
12 walk /4
12 warm /5
12 weak /6
12 wood /4
II abroad
II accompany /4
II affect /5
II afford /3
II afraid
II became
II bought
II caught
II cease /3
II chapter /2
II choice /2
II color /4
II consist /5
II contrast /2
II council /2
II credit
II death /2
II definite /2
⑥ II dispatch /3
II drop /4
II educate /4
II election
II engaged
II especial /2
II evidence /2
II evident /2
II exact /3
II extend /2
II fix /4
II forth
II garden /3
II generate /4
II glory /4
II hat /2
II health /3
II hurry /3
II ideal /3
II immense
II incline /3
II institute /4
II instrument /3
II latter
II launch /3
II lesson /2

[1,100] 87,017 /3,368

TABLE 4

II manage /5
II minor /3
II mount /4
II nice /3
II notice /4
II oblige /2
II police
II potato /2
II private
II pursue /5
II quality
II race /3
II raid /4
II rank /2
II remove /3
II reserve /5
II retailer /2
II sail /5
II skill /2
II spring
II staff
II stock /2
II struggle /3
II succeed /4
II sum
II summon /4
II surprise /3
II territory /3
II wagon /2
II wild
II worry /3

[1,131] 87,358 /3,453

occurred in any case, are abnormally enhanced in importance by the same conditions. The effect on the syllable or sound data is insignificant.

*Note* From a dozen to 20 "war words," such as *troops guns offensive bombardment artillery allies shells vessels patriotism neutral attacks submarine trench*, owe their presence in these tables to the fact that the material for analysis (Table 1, page 8) was selected during the spring of 1918, and that about half of that material was of an immediately current nature inevitably influenced by war conditions. Analysis of the original detailed data readily identifies and measures the extent of this influence. A somewhat lesser number of words such as *war peace military gun soldiers fight*, which would have

TABLE 5	TABLE 6	TABLE 5	TABLE 6
2,120 a	2,120 a	11 approximately	62 always
30 able	30 able	542 are	75 am
153 about	153 about	13 armies	12 amend /6
25 above	15 above	43 army	46 among
11 abroad	11 abroad	22 around	37 amount /3
17 according	12 absolute /3	13 arrived	330 an
20 account	20 accept /6	14 art	3,280 and
14 across	11 accompany /4	18 artillery	38 announce /6
15 act	14 accomplish /5	782 as	58 another
28 action	24 accord /4	30 ask	28 answer /4
11 acts	28 account /5	36 asked	210 any
12 addition	13 achieve /4	585 at	30 anything
15 address	14 across	18 attack	13 apparent /2
24 administration	70 act /8	12 attacks	32 appear /5
12 advance	20 active /3	19 attention	25 apply /6
14 advantage	16 actual /2	15 attitude	13 approximate /3
16 affairs	23 add /4	17 authority	549 are /2
11 afraid	21 addition /3	15 available	20 arm /4
107 after	24 address /4	16 avenue	57 army /3
31 afternoon	32 administer /6	14 average	22 around
62 again	13 admire /6	58 away	20 arrange /5
73 against	23 admit /5	16 awfully	25 arrive /4
19 age	21 advance /5	75 back	23 art /5
11 agents	16 advantage /3	15 bad	13 article /2
36 ago	20 affair /2	14 basis	19 artillery
13 aid	11 affect /5	38 battle	782 as
23 air	11 afford /3	846 be	75 ask /4
466 all	11 afraid	11 bear	13 assure /5
15 allies	117 after /3	14 beautiful	585 at
37 almost	33 afternoon /3	11 became	38 attack /4
21 alone	62 again	108 because	17 attempt /4
28 along	73 against	30 become	30 attend /6
27 already	24 age /3	③ 328 been	16 attitude /2
69 also	13 agent /2	139 before	27 authority /2
18 although	36 ago	23 began	17 avail /3
13 altogether	25 agree /7	27 beginning	17 avenue /2
62 always	18 aid /3	24 behind	14 average
75 am	13 aim /3	108 being	58 away
46 among	25 air /3	40 believe	24 awful /2
35 amount	14 airplane /2	52 best	15 baby /3
330 an	467 all /2	32 better	83 back /5
3,280 and	24 ally /3	60 between	23 bad /2
17 announced	15 allow /5	19 beyond	22 bank /5
15 announcement	37 almost	50 big	33 base /6
58 another	21 alone	15 bill	43 battle /3
18 answer	28 along	13 black	956 be /3
210 any	27 already	11 blue	27 bear /5
30 anything	69 also	15 board	24 beauty /3
12 apparently	18 although	18 body	11 became
11 appeared	13 altogether	19 bombardment	108 because

TABLE 5

18 bonds
11 book
34 books
11 bore
45 both
11 bought
13 boy
28 boys
11 bread
13 break
19 bring
13 broken
33 brought
25 building
24 built
91 business
11 busy
504 but
27 buy
600 by
40 call
32 called
71 came
11 campaign
197 can
58 cannot
21 can't
33 capital
17 car
12 carbon
23 care
21 carried
23 carry
18 cars
52 case
19 cases
11 caught
32 cause
12 causes
39 cent
30 cents
34 certain
14 certainly
13 chair
21 change
12 changed
17 character
23 charge
19 check
14 chief

TABLE 6

39 become /3
15 bed /2
329 been
139 before
23 began
41 begin /4
24 behind
59 believe /5
15 belong /4
16 beside /2
52 best
32 better
60 between
19 beyond
54 big /3
21 bill /2
12 billion /2
14 black /2
12 blue /2
18 board /3
29 body /4
31 bombard /5
25 bond /3
45 book /2
17 bore /4
45 both
11 bought
43 boy /4
12 bread /2
18 break /2
31 bring /3
15 broke /2
13 brother /3
33 brought
46 build /7
24 built
14 burn /3
91 business
12 busy /2
504 but
36 buy /5
600 by
85 call /6
71 came
19 camp /3
13 campaign /2
277 can /4
41 capital /6
20 capture /3
35 car /2

TABLE 5

24 child
35 children
14 citizens
44 city
12 claim
14 class
23 clear
13 close <i>adj</i>
33 coal
17 cold
123 come
23 comes
23 coming
14 command
29 committee
29 common
17 community
23 company
28 complete
13 condition
38 conditions
12 confidence
15 consider
12 considerable
13 considered
11 construction
20 continue
16 contract
17 control
12 cooperation
11 corn
12 correspondent
21 cost
11 costs
133 could
14 couldn't
92 country
16 county
37 course
22 court
12 cream
11 credit
18 cut
11 daily
14 danger
14 date
101 day
70 days
48 dear
12 declared

TABLE 6

12 carbon
48 care /9
55 carry /4
71 case /2
11 caught
57 cause /4
11 cease /3
69 cent /2
50 certain /3
26 chair /5
39 change /4
11 chapter /2
20 character /3
42 charge /4
19 cheap /4
23 check /3
21 chief /3
39 child /4
38 children /2
11 choice /2
21 citizen /2
51 city /4
23 claim /3
19 class /3
16 clean /5
38 clear /7
12 close /4 <i>v</i>
19 close /3 <i>a</i>
33 coal
18 cold /2
24 collect /10
11 color /4
171 come /4
14 comfort /3
26 command /9
48 commit /6
31 common /3
18 community /2
30 company /3
13 complain /5
39 complete /5
25 concern /4
14 conclude /6
51 condition /2
17 conduct /5
17 confer /3
12 confidence
52 consider /8
11 consist /5
17 constitute /6



TABLE 5

11 deep
14 defender
14 defense
16 delay
11 delivered
16 demand
12 demanded
22 department
13 desire
11 developed
100 did
23 didn't
12 difference
25 different
30 dinner
12 direct
14 distance
203 do
53 does
36 doing
22 dollars
40 done
67 don't
18 doubt
95 down
13 drawn
24 drive
12 driven
15 due
41 during
18 duty
63 each
34 early
11 earth
14 easily
19 easy
17 effect
15 efficiency
21 effort
23 eight
36 either
11 election
24 electric
16 else
11 enclosed
33 end
31 enemy
17 enforced
11 engaged
11 engine

TABLE 6

20 construct /4
15 consume /4
21 contain /4
49 continue /11
24 contract /3
11 contrast /2
14 contribute /5
32 control /5
13 convince /3
12 cooperation
13 copy /3
12 corn /2
13 corporation /2
25 correspond /5
37 cost /4
147 could /2
11 council /2
18 count /5
111 country /5
20 county /2
38 course /2
23 court /2
16 cover /4
12 cream
11 credit
18 critic /7
17 cross /4
17 crowd /4
15 cry /4
16 custom /5
29 cut /4
12 daily /2
21 danger /4
17 date /2
175 day /4
29 deal /6
59 dear /5
11 death /2
22 decide /4
21 declare /4
19 deep /5
14 defeat /2
27 defend /7
17 defense /3
11 definite /2
13 degree /2
21 delay /3
26 deliver /5
38 demand /4
15 democrat /3

TABLE 5

44 enough
14 entire
15 entirely
14 equipment
14 established
94 even
21 evening
51 ever
124 every
17 everything
14 everywhere
12 excellent
23 except
11 executive
15 existence
11 existing
12 expert
11 expected
17 experience
12 experts
11 express
11 expressed
18 eye
33 eyes
30 face
58 fact
13 facts
13 fail
15 failure
11 fair
11 fall
22 family
63 far
13 farm
11 fast
17 father
12 favor
13 fear
32 feel
16 feeling
30 feet
14 fell
15 fellow
15 felt
54 few
20 field
18 fifty
21 fight
40 fighting
17 figures

TABLE 6

26 department /3
16 depend /6
32 desire /6
34 destroy /7
17 detail /3
20 determine /4
21 develop /4
12 devote /3
123 did /2
15 die /3
46 differ /7
21 difficult /3
30 dinner
42 direct /8
26 discover /6
12 disloyal /3
71 dispatch /3
14 distance
12 distinct /4
16 distribute /4
12 district /2
14 division /3
239 do /2
63 does /2
30 dollar /3
40 done
67 don't
14 door /2
21 doubt /3
98 down /3
23 draw /5
14 dream /4
17 drink /4
37 drive /4
12 driven
11 drop /4
15 due
41 during
24 duty /2
13 dwell /8
63 each
41 early /3
13 earth /2
40 ease /5
12 east /3
26 eat /5
18 economy /7
11 educate /4
31 effect /5
15 efficiency

TABLE 5

11 filled
15 final
11 finally
49 find
17 fine
15 fire
131 first
12 fish
49 five
25 flour
12 follow
14 followed
21 following
11 follows
53 food
13 foot
1,035 for
23 force
13 forces
18 foreign
12 forget
18 form
11 forth
33 forty
17 forward
55 found
35 four
32 free
11 freedom
18 fresh
17 friend
17 friends
433 from
46 front
35 full
11 fund
29 further
29 future
11 gained
36 gave
37 general
16 generally
89 get
12 gets
16 getting
32 girl
18 girls
57 give
46 given
13 gives

TABLE 6

29 effort /2
23 eight
36 either
11 election
28 electric /2
25 else /3
30 employ /7
14 enclose /3
50 end /5
42 enemy /3
35 enforce /4
11 engaged
14 engine /2
13 engineer /3
44 enough
21 enter /4
29 entire /2
22 equal /3
21 equip /3
11 especial /2
26 establish /5
13 estimate /3
94 even
25 evening /3
13 event /3
51 ever
124 every
17 everything
14 everywhere
11 evidence /2
11 evident /2
11 exact /3
14 examine /4
13 exceed /4
14 excel /3
23 except
27 execute /8
12 exercise /3
38 exist /6
29 expect /6
17 expense /3
25 experience /3
17 expert /2
18 explain /4
36 express /6
11 extend /2
14 extreme /2
54 eye /3
41 face /3
85 fact /4

TABLE 5

11 giving
21 glad
73 go
11 goes
60 going
12 gold
20 gone
106 good
17 goods
50 got
57 government
134 great
16 greater
11 greatest
15 greatly
23 ground
12 grown
44 gun
23 guns
411 had
58 half
46 hand
32 hands
11 happen
19 happy
21 hard
390 has
617 have
31 having
680 he
27 head
25 hear
23 heard
18 heart
21 heavy
29 held
25 help
222 her
107 here
11 herself
46 high
17 higher
234 him
51 himself
517 his
18 history
22 hold
11 holding
63 home
16 honor

TABLE 6

17 factory /2
45 fail /6
18 fair /4
20 faith /4
24 fall /4
26 family /3
64 far /2
36 farm /6
14 fast /3
26 father /3
25 favor /6
23 fear /4
14 feature /3
51 feel /3
30 feet
14 fell
20 fellow /3
15 felt
56 few /2
30 field /2
18 fifty
62 fight /3
29 figure /3
20 fill /4
27 final /3
57 find /3
22 fine /4
13 finish /3
32 fire /4
15 firm /5
131 first
22 fish /7
14 fit /4
49 five
11 fix /4
13 flag /4
12 floor /3
26 flour /2
18 fly /4
58 follow /4
55 food /2
13 foot
1,035 for
49 force /6
19 foreign /2
14 forget /3
54 form /8
11 forth
37 forty /3
18 forward /2

# Words

TABLE 5	TABLE 6	TABLE 5	TABLE 6
30 hope	56 found /2	13 kindly	31 hear /3
12 horse	41 four /3	30 knew	23 heard
17 horsas	45 free /3	102 know	26 heart /7
26 hour	18 fresh	24 knowledge	12 heaven /2
26 hours	39 friend /4	33 known	33 heavy /5
53 house	12 fright /5	30 knows	29 held
124 how	433 from	39 labor	36 help /5
22 however	49 front /3	11 lack	12 hence /2
19 human	47 full /3	13 laid	234 her /3
21 hundred	19 fund /3	25 land	110 here /2
1,155 I	12 furnish /3	39 large	22 hero /4
11 I'd	29 further	12 largely	81 high /4
29 idea	29 future	15 larger	12 highway /3
13 ideas	21 gain /4	18 largest	15 hill /4
263 if	11 garden /3	77 last	285 him /2
20 I'll	15 gather /5	12 late	517 his
30 I'm	36 gave	12 later	24 history /5
14 immediate	55 general /4	11 latter	39 hold /5
12 immediately	11 generate /4	34 law	71 home /3
11 immense	20 gentle /5	16 laws	12 honest /3
24 important	117 get /3	13 learn	22 honor /3
26 impossible	50 girl /2	15 learned	50 hope /8
2,116 in	127 give /4	19 least	29 horse /2
15 increased	21 glad	18 leave	55 hour /4
24 indeed	11 glory /4	48 left	66 house /3
15 industrial	144 go /3	53 less	146 how /2
15 industry	15 gold /2	51 let	26 human /4
11 influence	20 gone	36 letter	24 hundred /2
24 information	125 good /3	20 letters	11 hurry /3
11 instance	50 got	12 liberty	1,236 I /5
17 instead	78 govern /9	89 life	42 idea /2
48 interest	178 great /5	18 light	11 ideal /3
19 interesting	31 ground /2	113 like	263 if
166 into	29 grow /5	52 line	12 ill /3
11 involved	13 guest /2	27 lines	22 imagine /5
1,213 is	72 gun /3	21 list	26 immediate /2
11 isn't	414 had /2	111 little	11 immense
16 issue	58 half	20 live v	33 import /3
1,216 it	81 hand /4	22 living	26 impossible
208 its	19 handle /5	25 loan	14 improve /5
38 it's	31 happen /5	94 long	2,116 in
26 itself	29 happy /5	11 longer	12 incident /3
20 I've	31 hard /7	30 look	11 incline /3
13 job	390 has	13 looked	21 include /4
11 judgment	11 hat /2	23 looking	13 income /3
86 just	12 hate /3	20 loss	40 increase /4
20 justice	658 have /3	15 losses	24 indeed
32 keep	687 he /3	28 lost	13 indicate /7
22 kept	38 head /7	32 love	15 individual /3
31 kind	11 health /3	16 low	39 industry /4

TABLE 5

18 machine	15 influence /4
170 made	36 inform /4
16 main	15 inquire /4
12 majority	15 insist /5
105 make	16 inspire /6
26 makes	17 instance /2
32 making	17 instead
156 man	11 institute /4
104 many	18 instruct /5
13 market	11 instrument /3
12 married	12 insure /4
19 material	82 interest /4
71 matter	166 into
160 may	14 introduce /3
257 me	17 invest /4
23 mean	15 involve /3
46 means	1,224 is /2
12 measure	34 issue /4
17 meat	1,488 it /4
19 meet	15 job /2
20 meeting	25 judge /5
16 members	110 just /4
19 memory	45 keep /5
164 men	22 kept
11 mental	15 kill /4
12 mere	57 kind /4
18 merely	13 king /2
20 met	30 knew
20 method	171 know /4
12 middle	25 knowledge /2
77 might	52 labor /6
12 mile	21 lack /4
29 miles	12 laid
51 military	36 land /4
19 milk	84 large /4
11 mill	85 last /4
22 million	34 late /4
16 millions	11 latter
39 mind	11 launch /3
13 minute	57 law /6
16 minutes	15 lay /4
15 miss	28 lead /5
23 modern	30 learn /3
27 moment	19 least
60 money	27 leave /4
24 month	48 left
32 months	56 less /4
210 more	11 lesson /2
45 morning	51 let
105 most	56 letter /2

TABLE 6

TABLE 5

20 mother	19 liberty /2
13 motor	90 life /2
11 move	③ 18 light
14 moved	129 like /7
104 much	23 limit /4
163 must	79 line /2
296 my	22 list /2
33 myself	16 listen /4
40 name	112 little /2
14 names	58 live /4
37 nation	34 loan /2
21 national	110 long /7
16 nations	69 look /4
12 native	63 loss /3
12 natural	52 love /7
20 nature	25 low /5
23 near	13 loyal /3
15 nearly	30 machine /3
35 necessary	170 made
15 necessity	23 main /2
32 need	20 maintain /4
12 needed	13 majority /2
21 needs	165 make /6
13 neither	167 man /5
13 neutral	11 manage /5
101 never	12 manner /2
99 new	24 manufacture /6
18 news	104 many
44 next	12 march /3
46 night	20 mark /4
321 no	17 market /4
12 nobody	23 marry /4
13 non	13 mass /3
17 none	13 master /2
28 nor	19 material
12 normal	76 matter /2
11 north	162 may
589 not	257 me
24 note	72 mean /4
61 nothing	17 measure /4
210 now	24 meat /3
32 number	44 meet /4
18 numbers	24 member /2
17 object	20 memory /2
21 o'clock	168 men /2
3,998 of	13 mental /2
43 off	13 mention /2
22 offensive	30 mere /2
27 office	20 met
23 officers	26 method /2

TABLE 5

11	offices
22	official
12	officials
27	often
53	oh
19	oil
75	old
643	on
59	once
368	one
14	ones
189	only
31	open
14	operation
24	opinion
16	opportunity
458	or
48	order
13	orders
12	ordinary
12	organization
169	other
25	others
16	ought
331	our
20	ourselves
203	out
153	over
75	own
16	paid
13	paper
79	part
19	particular
17	parts
27	party
20	pass
17	passed
29	past
14	patriotism
43	pay
59	peace
163	people
12	peoples
60	per
21	perfect
26	perhaps
14	period
17	permit
19	permitted
14	person

TABLE 6

12	middle
84	might /5
42	mile /3
51	military
20	milk /2
19	mill /2
42	million /4
44	mind /3
25	mine /5
11	minor /3
39	minute /3
19	miss /4
14	mistake /2
23	modern
33	moment /4
60	money
62	month /4
14	moral /5
210	more
46	morning /2
107	most /2
28	mother /3
23	motor /6
11	mount /4
44	move /6
104	much
168	must /2
329	my /2
14	mystery /4
68	name /5
59	nation /3
22	national /2
15	native /2
21	natural /4
21	nature /2
52	near /4
38	necessary /3
16	necessity /2
69	need /6
19	neighbor /4
13	neither
15	neutral /2
101	never
104	new /4
18	news
44	next
11	nice /3
49	night /2
18	nine /5
321	no

TABLE 5

15	personal
13	persons
16	picture
11	pictures
52	place
12	placed
18	places
16	plain
22	plan
19	plans
18	play
15	please
16	pleased
16	pleasure
32	point
11	police
23	political
23	poor
23	position
12	possibility
54	possible
22	pound
26	pounds
57	power
15	practical
61	present " & n
17	president
13	press
13	pressure
23	pretty
12	prevent
30	price
11	prices
12	principle
11	private
18	probably
18	problem
21	products
15	progress
21	proper
16	property
16	proposed
13	provide
13	provided
68	public
11	pure
42	purpose
16	purposes
63	put
11	quality

TABLE 6

12	nobody
13	non
17	none
28	nor
12	normal
16	north /3
589	not
34	note /5
61	nothing
11	notice /4
210	now
53	number /4
39	object /10
11	oblige /2
17	observe /7
16	obtain /3
13	occasion /4
13	occur /5
21	o'clock
3,998	of
43	off
30	offense /3
18	offer /5
38	office /2
34	officer /3
37	official /3
27	often
53	oh
20	oil /2
84	old /4
643	on
59	once
389	one /3
189	only
49	open /6
43	operate /9
28	opinion /2
18	opportunity /2
458	or
71	order /4
13	ordinary /2
36	organize /4
194	other /2
16	ought
357	our /3
206	out /3
153	over
90	own /6
26	pack /7
13	page /2

TABLE 5

23 question
16 questions
12 quickly
27 quite
11 railroads
20 range
18 rate
32 rather
17 reach
13 reached
24 read <i>present</i>
14 read <i>past</i>
19 ready
31 real
33 really
23 reason
16 reasons
23 received
18 recent
16 recently
13 red
20 regard
14 region
22 remember
19 report
12 reported
22 reports
18 required
15 respectfully
11 responsible
18 rest
28 result
17 return
91 right
12 ring
21 road
21 room
14 round
18 run
11 running
13 sacrifice
15 safe
161 said
67 same
14 sat
13 satisfactory
33 save
17 saved
14 saving
41 saw

TABLE 6

16 paid
19 paint /6
23 paper /2
97 part /3
29 particular /3
36 party /3
50 pass /4
29 past
27 patriot /6
67 pay /6
62 peace /3
180 people /3
60 per
35 perfect /4
26 perhaps
14 period
48 permit /5
48 person /6
12 physical /2
30 picture /3
85 place /4
27 plain /3
48 plan /4
16 plant /4
32 play /5
33 please /3
17 pleasure /2
48 point /3
11 police
38 politic /6
24 poor /2
23 position
22 possess /8
72 possible /4
11 potato /2
49 pound /3
68 power /3
25 practical /2
15 practice /3
25 prepare /4
68 present /3a & n
13 present /3 v
19 president /2
24 press /4
13 pressure
27 pretty /4
21 prevent /5
13 previous /2
45 price /4
20 principle /2

TABLE 5

111 say
27 saying
52 says
23 school
25 sea
24 second
12 section
13 secure
103 see
11 seeing
19 seem
26 seemed
30 seems
36 seen
17 self
28 send
19 sense
28 sent
13 serious
11 serve
48 service
48 set
13 seven
37 several
120 shall
11 shape
188 she
15 shells
18 ship
12 shipment
11 shipping
20 ships
118 should
31 show
13 showing
12 shown
43 side
16 sight
19 similar
18 simple
13 simply
52 since
13 single
14 sit
12 sitting
40 situation
37 six
13 size
46 small
300 so

TABLE 6

13 prison /3
11 private
21 probable /3
23 problem /2
15 proceed /6
23 produce /6
29 product /4
23 profit /5
12 program /2
21 progress /3
15 promise /4
21 proper
16 property
32 propose /5
12 protect /3
30 provide /4
19 provision /2
69 public /2
13 pull /5
23 purchase /6
18 pure /4
58 purpose /2
11 pursue /5
67 put /3
11 quality
13 quantity /2
14 quarter /2
44 question /4
18 quick /5
27 quite
11 race /3
11 raid /4
21 railroad /3
13 railway /2
17 raise /5
11 rank /2
15 rapid /4
20 range
27 rate /3
32 rather
37 reach /4
46 read /5 v
14 read <i>past</i>
19 ready
72 real /4
25 realize /4
48 reason /6
36 receive /4
34 recent /2
13 recognize /3

TABLE 5	TABLE 6	TABLE 5	TABLE 6
16 social	12 record /5	17 suppose	31 secure /6
15 sold	13 red	21 sure	153 see /4
27 soldiers	22 reduce /3	11 surely	20 seek /3
152 some	19 refer /6	11 sweet	75 seem /3
40 something	16 refuse /4	19 system	22 seize /5
14 sometimes	35 regard /5	13 table	29 self /4
42 soon	16 region /2	86 take	22 sell /4
20 sort	17 relate /7	46 taken	19 senate /4
16 south	25 remain /5	22 taking	33 send /2
17 speak	18 remark /5	20 talk	25 sense /5
12 speaking	37 remember /4	16 task	28 sent
26 special	11 remove /3	12 taught	12 sentiment /3
12 spent	59 report /6	22 tea	20 serious /3
14 spirit	28 represent /7	51 tell	33 serve /6
11 spring	46 require /5	12 telling	54 service /3
11 staff	11 reserve /5	24 ten	54 set /3
12 stage	15 resource /2	17 terms	18 settle /5
43 stand	40 respect /8	194 than	26 seven /5
14 standard	22 responsible /3	21 thank	37 several
11 started	18 rest	1,345 that	120 shall
36 state	44 result /4	21 that's	18 shape /4
38 statement	11 retailer /2	7,310 the	13 share /3
12 station	33 return /4	315 their	194 she /3
11 stay	14 ride /4	228 them	23 shell /3
48 steel	110 right /6	34 themselves	67 ship /7
14 step	17 ring /3	115 then	19 short /4
58 still	12 river /2	306 there	119 should /2
11 stone	31 road /2	16 therefore	12 shoulder /2
16 stood	12 roll /5	152 these	72 show /5
19 stooped	24 room /3	478 they	50 side /2
12 stop	16 round /3	44 thing	19 sight /3
20 story	12 rub /3	82 things	15 sign /3
11 straight	21 rule /5	73 think	19 similar
17 strange	31 run /4	19 thinking	33 simple /4
21 street	14 rush /3	22 third	52 since
19 strength	18 sacrifice /3	24 thirty	14 single /2
14 strike	28 safe /4	572 this	29 sit /4
11 striking	161 said	104 those	41 situation /2
14 strong	11 sail /5	38 though	53 six /5
14 study	67 same	67 thought	16 size /3
32 subject	14 sat	27 thousand	11 skill /2
19 success	14 satisfactory /2	13 thousands	21 slave /3
11 successful	64 save /3	75 three	54 small /3
132 such	41 saw	78 through	12 smile /4
12 suit	191 say /4	14 throughout	300 so
11 sum	33 school /4	17 thus	18 social /3
16 summer	31 sea /2	19 till	15 sold
14 supplies	12 seat /3	205 time	41 soldier /5
19 supply	24 second	27 times	152 some
18 support	17 section /3	2,924 to	40 something

TABLE 5

④ 68 today
17 to-day
25 together
33 told
11 tomorrow
12 tonight
16 tons
57 too
40 took
17 total
13 touch
19 toward
18 town
11 trade
19 train
17 training
13 trains
15 transportation
26 troops
21 trouble
30 true
30 truly
17 trust
21 truth
14 try
11 trying
17 turn
30 turned
13 twelve
30 twenty
146 two
12 type
108 under
19 understand
12 unknown
21 unless
50 until
16 unto
204 up
129 upon
123 us
28 use
36 use
45 used
12 using
12 usual
26 value
14 various
145 very
15 vessels

TABLE 6

14 sometimes
48 soon /2
25 sort /3
13 sound /5
17 south /2
34 speak /5
35 special /5
13 speech /2
12 speed /5
12 spent
21 spirit /3
12 spoke /2
11 spring
12 square /3
11 staff
12 stage
61 stand /3
18 standard /3
22 start /3
92 state /6
18 station /3
15 stay /3
48 steel
22 step /3
58 still
11 stock /2
15 stone /2
16 stood
20 stoop /2
15 stop /3
24 store /4
22 story /2
22 straight /5
28 strange /5
31 street /2
20 strength /2
26 strike /3
22 strong /4
11 struggle /3
19 study /4
40 subject /4
12 submarine /2
14 substitute /3
11 succeed /4
34 success /5
16 suffer /3
133 such
23 suggest /6
20 suit /4
11 sum

TABLE 5

20 victory
29 view
13 village
12 voice
14 wait
44 want
24 wanted
12 wants
214 war
839 was
11 wasn't
39 water
104 way
15 ways
529 we
13 weather
25 week
15 weeks
113 well
50 went
305 were
15 west
253 what
16 whatever
32 wheat
237 when
83 where
31 whether
454 which
78 while
16 white
248 who
45 whole
28 whom
42 whose
51 why
11 wide
11 wife
11 wild
445 will
13 willing
17 win
11 winter
13 wise
28 wish
727 with
20 within
70 without
59 woman
47 women

TABLE 6

16 summer
11 summon /4
45 supply /4
24 support /5
22 suppose /2
33 sure /3
11 surprise /3
15 sweet /3
25 system /7
17 table /3
164 take /4
33 talk /4
21 task /2
20 tax /4
19 teach /5
12 taught
22 tea
71 tell /3
12 tend /8
24 ten
22 term /2
13 terrible /2
11 territory /3
17 test /4
194 than
31 thank /4
1,367 that /3
7,310 the
319 their /2
262 them /2
115 then
329 there /3
152 these
495 they /4
126 thing /2
99 think /3
22 third
25 thirty /2
572 this
194 those
38 though
75 thought /3
40 thousand /2
75 three
94 through /2
20 throw /4
17 thus
19 till
232 time /2
12 tire /3



TABLE 5	TABLE 6
15 won	2,924 to
14 wonder	88 today /2
17 won't	25 together
19 word	33 told
18 words	14 tomorrow/2
83 work	22 ton /3
13 working	12 tonight
12 works	57 too
103 world	40 took
11 worse	19 total /2
22 worth	24 touch /5
252 would	24 toward /2
15 wouldn't	20 town /2
21 write	19 trade /5
14 written	56 train /5
32 wrong	26 transport /3
59 year	14 travel /6
93 years	15 treat /6
23 yes	12 tree /2
33 yesterday	12 trench /2
68 yet	26 troops
775 you	36 trouble /5
41 young	60 true /2
214 your	29 trust /5
16 you're	22 truth /2
56 yours	25 try /2
12 yourself	54 turn /4
	13 twelve
	31 twenty /2
	146 two
	18 type /2
	109 under /2
	30 understand /3
	12 union /2
	13 universe /5
	12 unknown
	21 unless
	50 until
	16 unto
	207 up /3
	129 upon
	123 us
	28 use n
	100 use v /6
	19 usual /2
	13 utter /4
	38 value /5
	17 vary /3
	13 vast /3
	15 very

TABLE 6
18 vessel /2
22 victor /3
37 view /4
13 village
12 visit /4
18 voice /3
16 vote /4
12 wage /4
11 wagon /2
24 wait /3
12 walk /4
83 want /4
217 war /2
12 warm /5
850 was /2
16 waste /5
25 watch /3
49 water /3
119 way /2
537 we /3
12 weak /6
14 weather /2
40 week /2
17 weight /5
113 well
50 went
307 were /2
21 west /3
260 what /2
16 whatever
36 wheat /2
237 when
83 where
31 whether
454 which
79 while /2
16 white
248 who
52 whole /2
28 whom
42 whose
51 why
13 wide /2
15 wife /2
11 wild
464 will /6
20 win /3
17 window /2
14 winter /3
16 wire /5

TABLE 6

13	wise
38	wish /4
727	with
20	within
70	without
16	witness /5
59	woman
48	women /2
15	won
27	wonder /5
17	won't
12	wood /4
38	word /3
127	work /7
117	world /4
11	worry /3
15	worse /2
27	worth /3
267	would /2
17	wound /4
40	write /5
14	written
39	wrong /2
14	yard /2
152	year /2
23	yes
33	yesterday
68	yet
808	you /5
41	young
283	your /4

Note in Table 3 that almost exactly 500 words occur over 20 times. By ignoring words of frequency 20 or under Table 5 may thus be read as an alphabetic list of the 500 commonest words which make up about 2/3 of all ordinary speech.

See also note on "war words" at end of Table 3 (page 30).

## **Part 3—Syllables**



### Part 3 — Syllables

#### *Relative frequency of the commoner syllables of English*

As with the commoner words, the commoner syllables of English make up a strikingly large proportion of all ordinary discourse. To parallel the facts observed:

10,119 different particular words make up 100,000 total.

About 4,400 different syllables, on a 41 sound basis, make up 143,000 total.

117 words occur over 100 times, and make up 56.0 % of the total.

220 syllables occur over 100 times, and make up 68.7 % of the total.

1,027 words occur over 10 times, and make up 78.6 % of the total.

1,370 syllables occur over 10 times, and make up 93.3 % of the total.

The syllable is investigated in as much detail as hereafter reported because it affords the only constant, readily distinguishable, and easily manipulated unit between simple sounds on the one hand and complete words on the other; and also because separate study of those consonant combinations occurring before and after the vowel of the syllable suffices to investigate practically all the characteristic sound combinations of English; leaving explicitly unstudied only those combinations occurring at the junction of syllables, much less uniform and characteristic, and sufficiently exhibited by the commoner words investigated.

Tables 7 and 8 following show the 220 commonest syllables which occur oftener than 100 times each in 100,000 words; first, arranged in order of frequency; second, classed by vowels and arranged in order of frequency under each vowel.

The phonetic notation adopted is the S S B key alphabet, strictly in harmony with the Revised Scientific Alphabet, shown in detail in Appendix A. Readers not familiar with the Revised Scientific Alphabet, Key 1 of the Standard Dictionary, should study this notation before examining the results hereafter reported.

The distinctive treatment accorded the commonest word or syllable of English, *the*, is discuss at length under sounds (pages 123 and 126).

Thruout the syllable data occasional syllables containing a or u are marked with a \*, to call attention to the slightly variant sound of a or u which usually occurs before r. The precise nature of these variant sounds will be discuss in connection with the sound data (page 126).

Note that in such syllables as *bl n l pl nt* the syllabic *n* or *l* has vowel value, and is accordingly treated as the "vowel" of the syllable.

The 6 syllable tables which follow are each based on the 1,370 commonest syllables occurring oftener than 10 times in 100,000 words, which make up 93.3 % of the total number of syllable occurrences. In view of the diversity of the material analyzed, and the more general character of syllables as compared with words, the conclusion seems warranted that these tables include most or all of those syllables likely to occur more than sporadically in any selection of 10,000 or even 100,000 words.

Study of the syllable, whether as a complete speech-unit or as a combining form, may focus on the vowel of the syllable, the initial sounds, or the final sounds. These tables exhibit the 1,370 commonest syllables under each of these 3 aspects.

Table 9, which presents the 1,370 commonest syllables classed by vowels, in order of frequency under each vowel, calls for no special comment. Table 10 is merely a conspectus of Table 9. In connection with the tables arranged according to initial or final sounds, however, certain structural characteristics of the English language should be observed.

One of the marked characteristics of English, of superlative importance in constructing a system of shorthand, is the tendency of certain consonant sounds to occur in combinations of 2, 3, and even 4, both before and after the vowel of the syllable in which they occur, spoken in a single voice impulse with the vowel. The double combinations are commonly known as consonant diphthongs.\*

\* Distinguish clearly between a digraph, two letters for one sound, and a diphthong, two vowel sounds (in the case of a consonant diphthong, two adjoining consonant sounds) pronounced in one syllable.

TABLE 7 220 COMMONEST SYLLABLES, OCCURRING OFTENNER THAN 100 TIMES IN 100,000 WORDS, IN ORDER OF FREQUENCY

7,310	n	464	e	235	pər	153	bət	114	biz
4,001	ev	462	an	233	hur	152	ɦɪz	113	kun
3,284	in	454	hwɪç	230	yŭr	152	lit	111	jen
3,280	and	446	so	228	for	152	ɦaɪ	110	nev
3,217	i	433	frem	226	pro	147	kud	110	e
3,167	ə	414	had	225	kem	147	lɔŋ	108	til
3,152	tŭ	412	wun	224	ful	147	ɦɪr	108	gud
2,353	ɪŋ	402	ment	222	tám	146	ver	107	par
2,084	ər	394	haz	221	mor	145	kəz	107	muç
1,625	ri	386	bl	221	wər	143	rət	106	stand
1,416	it	386	ən	218	pl	142	bər	106	wurld
1,346	ɦat	382	men	218	man	141	mɛk	106	ens
1,286	iz	379	ərz	212	ɦenz	141	ij	105	tərz
1,259	ɔ	378	air	211	wɛ	141	im	105	səd
1,201	li	343	n	210	nai	140	pɛ	104	ɦoz
1,136	fər	341	má	210	mɛ	136	tiv	104	sit
967	br	335	ɦar	207	sɛ	134	did	104	ak
923	ɦen	333	up	206	tri	133	lák	104	egz
907	ed	332	at	200	sɪ	132	suç	104	ənz
862	yŭ	329	bin	200	nɛ	132	ərɪn	101	ik
850	wɛz	328	wur	194	pɛs	131	furst	98,149	[220]
841	wɪd	323	ɦər	194	pur	130	pri		
835	dɪ	308	ev	193	rɪ	130	mi		
830	tɪ	306	mɪ	188	ɦɪ	129	ɦɪŋ		
816	ən	305	tu	187	nɪ	129	mə		
783	az	295	eks	186	est	127	kəl		
707	o	293	its	186	ɪ	127	get		
696	ɦɪ	291	kan	184	ɦan	127	u		
686	a	290	dər	182	nŭ	126	mən		
679	əl	285	ɦim	181	grɛt	126	am		
675	en	282	us	181	is	125	ɦwar		
658	ɦav	281	wud	179	to	124	mit		
644	bá	277	sum	179	go	124	wurk		
642	ar	277	hwet	179	mɛd	124	ərd		
621	bɪ	276	ɪf	178	sur	123	part		
612	at	276	on	177	ad	122	tɪn		
602	ər	270	kum	171	tɛk	122	wel		
596	net	268	yu	166	kə	121	gɪv		
575	tər	266	dɛ	166	sɛlf	121	let		
572	ɦɪs	264	nes	166	les	120	sɛnt		
570	əl	264	l	165	must	120	su		
556	kən	263	sɪ	162	ɛnt	120	sub		
537	wɪ	262	ɦɛm	161	sɛd	120	ɦal		
529	ɛz	261	dɪs	161	çur	119	təl		
517	but	258	uɦ	160	tɛ	119	ɦud		
517	ɦɪz	252	ɦŭ	155	most	119	nt		
478	ɦɛ	251	vər	155	ə	117	mil		
478	no	246	ɦwen	154	lɛ	116	mo		
470	wɪl	239	dŭ	154	af	115	tɪz		
466	un	238	pɪ	153	po	115	ɦɛn		
63,814		79,014		89,468		96,012			

IN ORDER OF FREQUENCY UNDER EACH VOWEL.

u	ə	o	u	ʊ	ɪ	ɛ	au	ü
but 517	er 3167	o 707	tu 305	tʊ 3152	ɪ 1259		air 378	nü 182
un 466	er 2084	no 478	wud 281	yü 862	bɪ 644		ait 332	
wun 412	ən 923	so 446	yu 268	hʊ 252	mɪ 341		nai 210	
up 333	tər 575	on 276	ful 224	dü 239	təm 222		bait 153	
wur* 328	əl 570	for 228	çur 161	yür 230	rət 143		hai 152	
us 282	ən 386	pro 226	kud 147		lɛk 133			
sum 277	ərz 379	mor 221	u 127		səd 105			
kum 270	dər 290	to 179	sud 119					
uf 258	vər 251	go 179	gud 108					
hur* 233	pər 235	most 155						
pur* 194	ənz 212	po 153						
sur 178	bər 142	mo 116						
must 165	ərn 132	doz 104						
suc 132	mə 129							
furst* 131	kəl 127							
wurk* 124	mən 126							
su 120	ərd 124							
sub 120	təl 119							
kun 113	tərz 105							
muç 107	ənz 104							
wurld* 106								
<u>4,866</u>	<u>10,180</u>	<u>3,468</u>	<u>1,740</u>	<u>4,735</u>	<u>2,847</u>	<u>0</u>	<u>1,225</u>	<u>182</u>
21	20	13	9	5	7	0	5	1



TABLE 8. 220 COMMONEST SYLLABLES CLAST BY VOWELS,

di	n,l	a	u	e	ɛ	i	ɪ	ə	ɐ
di 7,310	bl 386 n 346 l 264 pl 218 nt 119	and 3280 fat 1346 az 783 a 686 hav 658 at 612 an 462 had 414 haz 394 far* 335 kan 291 man 218 fan 184 ad 177 af 154 am 126 hwar* 125 fal 120 stand 106 ak 104	ar 642 part 123 par 107	ed 907 en 675 ez 529 ment 402 men 382 ev 308 eks 295 nes 264 den 262 hwen 246 est 186 self 166 les 166 ent 162 sed 161 ver 146 get 127 wel 122 let 121 sent 120 den 115 jen 111 nev 110 e 110 ens 106 egz 104	de 478 e 464 der 323 de 266 we 211 me 210 se 207 ne 200 grēt 181 mēd 179 tek 171 te 160 le 154 mek 141 pe 140 its 293 him 285 if 276 ei 263 dis 261 tri 206 ni 187 is 181 lit 152 ij 141 im 141 tiv 136 did 134 pri 130 mi 130 hiq 129 mit 124 tin 122 giv 121 mil 117 tiz 115 biz 114 til 108 sit 104 ik 101	in 3284 i 3217 ig 2353 ri 1625 it 1416 iz 1286 li 1201 wid 841 di 835 ti 830 bi 621 dis 572 hiz 517 wil 470 hwic 454 bin 329 its 293 him 285 if 276 ei 263 dis 261 tri 206 ni 187 is 181 lit 152 ij 141 im 141 tiv 136 did 134 pri 130 mi 130 hiq 129 mit 124 tin 122 giv 121 mil 117 tiz 115 biz 114 til 108 sit 104 ik 101	br 967 ht 696 wl 537 ml 306 pl 238 st 200 rt 193 st 188 f 186 dz 152 hr 147 e 155	ev 4001 wez 850 en 816 nēt 596 kēn 556 frēm 433 hwet 277 kēm 225 pes 194 kē 166 e 155	far 1136 el 679 er 602 wār 221 lēŋ 147 kēz 145
7,310									
I									
Total									
98,149	1,330	10,575	872	6,403	3,485	23,922	3,810	8,260	2,930
220	5	20	3	26	15	41	11	11	6

By analogy the triple combinations may be called consonant trithongs, and the exceptional quadruple combinations (as in *tempt's*, *sixths*, *world's*, etc) quadrithongs. The combinations occurring before the vowel of their syllable may well be named preceding consonant dithongs and trithongs, and the combinations occurring after the vowel of their syllable following consonant dithongs, trithongs, or quadrithongs.

Preceding consonant compounds are formed chiefly by *l* *r* and *w* after other consonants, and by *s* before; the trithongs having always the form of *s* preceding a dithong—that is *s'l*- (*s*-consonant-*l*-vowel), *s'r*-, or *s'w*-. Following consonant compounds are more varied and numerous. The more important of these are formed by *s* and *z*, *t* and *d*, and with *l* and *r*; less often by *h*, *m*, *n*, *ŋ*.

Appendix B tabulates 57 consonants or consonant compounds which occur in English preceding the vowel of their syllable, of which 51 occur among the commonest syllables here reported; 181 consonants or consonant compounds which occur following the vowel of their syllable, of which 96 occur among the commonest syllables; also 51 syllabic consonant combinations, of which 22 occur among the commonest syllables. These appended tables will repay careful study in this connection altho their data are not directly quantitative.

Table 11 presents the 1,370 commonest syllables in fonetic order, thus bringing together those syllables which begin with the same sound or sound combination. Table 12, which summarizes Table 11, shows at a glance the comparative frequency of the various preceding consonant compounds.

Table 13 presents the 1,370 commonest syllables in reverse fonetic order (riming dictionary order), thus bringing together those syllables which end with the same sound or sound combination. Table 14 summarizes Table 13, showing similarly the comparative frequency of the various following consonant compounds.

So far as I can determine the results here reported constitute the first and only reliable quantitative data with respect to the characteristic sound combinations, other than words, of English. The tables follow.

TABLE 9 1,370 COMMONEST SYLLABLES OCCURRING OFTENET THAN  
10 TIMES IN 100,000 WORDS, CLAST BY VOWELS, IN ORDER  
OF FREQUENCY UNDER EACH VOWEL

n		l		a		land		par*	
n	343	bl	386	and	3280	akt	36	bagk	19
nt	119	l	264	fat	1346	askt	36	kam	19
vn	98	pl	218	az	783	ab	34	pak	18
zn	59	plz	34	a	686	av	34	blak	18
nd	44	lz	30	hav	658	tab	33	bar	18
pn	41	tl	28	at	612	tak	32	gram	18
znz	32	ld	28	an	462	taks	32	farz*	18
nz	20	dl	20	had	414	raf	32	skwar*	18
dn	16	gl	20	haz	394	handz	32	vans	17
kn	15	kl	17	fat*	335	par	30	aj	17
		klz	15	kan	291	mas	30	task	16
		blz	13	man	218	naſ	29	fast	16
				fan	184	aj	29	lak	16
				ad	177	trakt	28	dam	15
				af	154	fam	28	gaſ	15
				am	126	van	27	gal	15
				hwar*	125	haps	26	rap	15
				ſal	120	plan	25	trak	14
				stand	106	pard*	25	kat	14
				ak	104	mar	25	çap	14
				mat	90	bad	24	flat	13
				kar	88	haſk	24	fakts	13
				bak	87	ap	24	vast	13
				last	86	kant	23	sam	13
				fak	80	ar*	23	hab	13
				hap	69	al	23	paç	12
				kap	66	klas	22	pan	12
				pas	65	war*	22	ban	12
				haf	63	glad	21	klard*	12
				bat	58	fan	21	ſtaf	12
				fakt	58	naç	21	standz	12
				hand	57	ſats	21	ag	12
				val	53	sak	21	trast	11
				mand	53	han	21	graf	11
				trans	51	as	21	7 farz*	11
				ſat	50	pat	20	lat	11
				past	47	trav	20	wag	11
				prak	44	nan	20	akts	11
				gan	42	mag	20		
				ask	37	planz	19		
	<u>787</u>		<u>1,073</u>						<u>13,453</u>
	10		12						120

a	e	jekt	sep	test
ar 642	ed 907	sev 64	et 32	spek 20
part 123	en 675	el 63	twen 31	streng 20
par 107	ez 529	gen 62	ven 31	nent 20
larj 69	ment 402	yes 57	hwet 31	mes 20
far 65	men 382	sek 56	pre 30	rev 20
gard 47	ev 308	hed 56	8 ter 30	reg 19
kar 43	eks 295	pen 55	sents 30	tempt 18
garj 39	nes 264	selvz 55	ef 30	mend 18
farm 35	dem 262	pres 53	lekt 29	er 18
bard 31	hwen 246	best 52	lent 29	plez 17
mar 31	est 186	tem 52	help 29	dek 17
hard 31	self 166	sez 52	dres 28	kwest 17
fa 26	les 166	went 50	vest 28	frendz 17
hart 25	ent 162	left 48	vent 28	mez 17
bar 23	sed 161	tend 46	zent 28	eh 17
start 22	ver 146	ker 46	ger 28	te 16
arm 22	get 127	kwes 45	prest 27	def 16
gar 19	wel 122	hev 45	fen 27	gres 16
art 19	let 121	nekst 44	vel 27	felt 16
karz 18	sent 120	ej 44	sted 27	net 16
mark 18	den 115	sel 43	res 27	med 16
lar 18	jen 111	end 43	elz 27	ents 16
parts 17	nev 110	dens 42	fens 26	ded 15
marks 17	e 110	sept 41	meh 26	se 15
yardz 16	ens 106	rekt 41	west 26	sel 15
har 15	egz 104	send 40	met 25	selz 15
garjd 11	tel 100	bet 38	her 25	jes 15
a 11	prez 99	tent 38	els 25	nek 15
	sen 99	ger 38	fend 24	ren 15
	ek 99	rep 38	per 23	wet 15
	ments 97	ber 36	tens 23	bred 14
	es 94	dren 36	kept 23	kwent 14
	ten 87	pekt 35	frend 23	fed 14
	set 86	spekt 35	kred 22	step 14
	em 86	fel 35	ref 22	se 14
	dent 82	spe 35	des 21	jekts 14
	mem 80	sens 35	den 21	twelv 13
	red 79	dem 34	ket 21	tes 13
	genst 73	fer 34	fre 21	dev 13
	lek 73	rest 34	fek 21	dents 13
	fekt 70	jest 33	gek 21	gets 13
	ses 69	held 33	jek 21	spes 13
	rek 69	dred 32	lem 21	jent 13
	yet 68	ves 32	pend 20	jents 13
1,560				
28				

		e						i	
lej	13			sef	33	stej	12		
pel	12	dē	478	fel	32	šep	12	in	3284
trenç	12	e	464	rēt	32	bēs	11	i	3217
dwel	12	dēr	323	tēnd	31	gejd	11	ig	2353
spent	12	dē	266	ge	31	gēnd	11	ri	1625
zen	12	wē	211	wēz	30	frēd	11	it	1416
šens	12	mē	210	çenj	29	hēt	11	iz	1286
mens	12	sē	207	strēt	28	rēs	11	li	1201
rez	12	nē	200	strēnj	28	rēz	11	wiŋ	841
rej	12	grēt	181	meks	26	wēj	11	di	835
hens	12	mēd	179	dēn	24			ti	830
helh	12	tēk	171	dēt	23			bi	621
ets	12	tē	160	brēk	22			dis	572
peš	11	lē	154	tēl	21			hiz	517
bed	11	mēk	141	fēh	21			wil	470
beg	11	pē	140	vēl	21			hwic	454
tekt	11	rē	99	sēl	21			bin	329
del	11	ēt	97	nēt	21			its	293
gest	11	kē	89	ej	21			him	285
splen	11	stēt	89	tēt	20			if	276
zes	11	kēm	82	ēr	20			si	263
šer	11	plēs	81	plēnz	19			dis	261
nest	11	dēz	78	pēn	19			tri	206
welh	11	kēs	71	pēt	19			ni	187
ests	11	lēt	70	ēd	19			is	181
		sēm	67	pēd	18			lit	152
		mēm	59	sēvd	17			im	141
		bē	54	mēt	16			ij	141
		trē	54	red	16			tiv	136
		vē	49	led	16			did	134
		sēv	49	trēd	15			pri	130
		nēm	48	çenj	15			mi	130
		plēn	45	wēt	15			hiŋ	129
		tēn	43	plēt	14			mit	124
		fēs	42	tēks	14			tin	122
		zē	40	klēm	14			giv	121
		rēl	39	nēmz	14			mil	117
		plē	38	pēj	13			tiz	115
		stē	38	trēnz	13			biz	114
		trēn	37	grē	13			til	108
		gēv	36	gēt	13			sit	104
		fē	35	slēv	13			ik	101
		rēnj	35	mel	13			fīš	98
		wēt	35	trēt	12			hiŋk	93
		kēt	33	vēd	12			id	86
<u>12,076</u>						<u>6,126</u>			
204						99			











a		e		ai		ü			
a	1259	láz	26	pént	51	aur	378	nü	182
bá	644	wáz	26	béz	29	ait	332	fü	100
má	341	fán	25	lé	25	nai	210	mü	55
tám	222	strák	25	plé	22	bait	153	dü	51
rát	143	tá	24	el	20	hai	152	bü	49
lák	133	hánd	24	vés	19	dain	99	dür	47
sád	105	plád	23	bé	15	pai	77	düs	39
há	100	kwárd	23	stré	15	haus	70	hü	35
láf	91	fár	23	jé	14	fand	64	kü	34
mát	85	zár	23	çés	11	kain	52	vü	34
hwál	80	dá	22			maint	43	sü	34
nát	64	ál	22			hai	40	nüz	33
fát	62	pláz	20			rand	39	lü	31
lát	61	áv	20			kant	37	tü	28
áz	61	vés	17			aurz	34	kür	28
fánd	60	sádz	17			pandz	26	düst	27
kánd	53	hwát	17			dart	26	tüd	24
lán	53	nán	16			grand	25	süt	21
hwa	51	mán	16			flaur	25	sum	21
fáv	49	táz	15			pand	24	lüt	20
sá	48	flá	15			haiz	23	tüt	19
mánd	48	fás	15			nains	22	püt	17
fá	45	rávd	15			sañh	21	tün	17
trá	45	práz	14			naunst	20	gu	17
prás	43	táp	14			tain	19	tür	11
támz	42	krá	14			kraid	15		
plá	39	rád	14			sand	11		
lá	39	ráz	14			laud	11		
dráv	37	wád	14						
fád	37	wár	14						
ázd	37	ád	14						
kwár	35	váz	13						
tár	34	mál	13						
vád	34	frát	12						
sát	32	spát	12						
çald	32	wáf	12						
prá	30	tárd	11						
rá	30	dád	11						
ám	30	ráts	11						
kwát	28	wald	11						
vá	28								
málz	28								
länz	27								
sáz	26								
		5,258	221			2,048	973		
		84	10			28	25		

TABLE 10 SUMMARY OF TABLE 9

Vowel sound	Occurrences	Items
n	787	10
l	1,073	12
<i>n, l</i>	1,860	22
a	13,453	120
ɑ	1,560	28
e	12,076	204
ē	6,126	99
i	28,388	179
ī	6,507	101
ə	9,919	65
ē	4,277	51
u	7,773	119
ə	12,350	90
o	5,418	77
u	2,393	31
ū	5,676	36
<i>Vowel</i>	115,916	1,200
ɪ	5,258	84
ē	221	10
ai	2,048	28
ū	973	25
<i>Diphthong</i>	8,500	147
fi	7,310	1
<i>n, l</i>	1,860	22
<i>Vowel</i>	115,916	1,200
<i>Diphthong</i>	8,500	147
<b>Total</b>	<b>133,586</b>	<b>1,370</b>

TABLE 11 1370 COMMONEST SYLLABLES IN PHONETIC ORDER

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	θ
pl		plan 25 planz 19		plez 17	plē 38 plēs 81 plēst 14 plēn 45 plēnz 19	pli 24	plɪt 41 plɪz 17 plɪzd 16		
	$\frac{460}{16}$								
pr		prak 44		pres 53 prest 27 prez 99 prel 30		pri 130 prit 27 priz 14 prin 20	prɪ 36 prɛp 66 prɛb 45 prɛd 24 prɛks 14 prɛg 15 prɛf 30 pres 20 prɛm 22		
	$\frac{1,061}{2}$								
p	pn 41 pl 218 plz 34 $\frac{3,242}{59}$	pat 20 pak 18 pas 65 past 47 paç 12 pan 12 par 30 par* 19 pard* 25	par 107 part 123 parts 17	pekt 35 pef 11 pen 55 pend 20 pel 12 per 23	pē 140 pēd 18 pēj 13 pēn 19 pēnt 19	pi 42 pik 34 pin 30	pt 238 pls 74 plr 14 plrd 14	pə 22 pɛp 18 pɛs 194 pɛl 27	pθr 34
bl		blak 18				bli 54 bliŋ 16			
	$\frac{111}{5}$								
br				bred 14 brɛk 22	brij 11 brig 23			brɛt 33 brɛd 14	
	$\frac{147}{8}$								

u	ə	o	u	ū	í	ē	ai	ü
					plā 39 plād 23 pláz 20	plē 22		
		pro 226		prūv 21 prūvd 11	prā 30 prás 43 práz 14			
pub 83 pur* 194 purts* 12	pə 72 pes 61 per 235 perz 13	po 153 post 17 poz 35 pozd 28 por 47 port 77 ports 29	pu 73	pūr 24		pēt 51	pai 77 pand 24 pandz 26	pür 17
blud 12				blū 11				
brud 13		bro 17						

62 *Relative Frequency of English Speech Sounds*

	n, l	a	ɑ	e	æ	i	ɪ	ə	o
b	bl 386 blz 13 <u>5,121</u> 51	bat 58 bad 24 bak 87 ban 12 bank 19 bar 18	bar 23 bard 31	bet 38 bed 11 beg 11 best 52 ber 36	bæ 54 bēs 11	bi 62 bit 20 big 55 biz 114 biš 16 bin 329 bil 82 bilt 26 bild 47	bt 967 btt 12	bed 67 bem 34 bendz 18	bēt 11 bēm 11
tr	<u>859</u> 28	trak 14 trakt 28 trav 20 trast 11 trans 51		trenç 12	træ 54 trēt 12 trēd 15 trēn 37 trēnz 13	tri 206 trib 17 trik 26 triz 24	trɪ 12 trɪt 14 trɪm 14		
tw	<u>104</u> 3			twen 31 twelv 13			twɪn 60		
t	ti 28 <u>8,123</u> 77	tab 33 tak 32 taks 32 task 16		te 16 tekt 11 tes 13 test 20 tem 52 tempt 18 ten 87 tent 38 tend 46 tens 23 tel 100 ter 30	tē 160 tēt 20 tēk 171 tēks 14 tēn 43 tēnd 31 tēl 21	ti 830 tik 68 tif 11 tiv 136 tivz 23 tis 65 tiz 115 tiš 16 tij 20 tin 122 til 108	tt 42 ttç 19 ttɪn 27	təl 11 tər 15 tēt 12 tēk 23	

u	ə	o	u	ü	i	é	ai	ü
but 517	bən 12	boh 45	buk 18		bá 644	bé 15	bait 153	bü 49
buv 25	bər 142	bor 13	buks 34			béz 29		
bur* 11	berd 16	bord 19						
burn* 12	berdz 53							
trub 37	trə 14	tro 30		trü 30	trá 45			
trust 31	trəl 20	trol 25		trüps 26				
				trüh 21				
tue 11	tə 63	to 179	tu 305	tü 3152	tá 24		tan 19	tü 28
tuç 20	təm 14	told 34	tuk 40	tür 12	táp 14			tüt 19
tunz 16	tən 13				táz 15			tüd 24
tur* 57	tənt 40				tám 222			tün 17
turmz* 17	təns 36				támz 42			tür 11
turn* 47	təl 119				tár 34			
turnd* 41	tər 575				tárd 11			
	terd 29							
	terz 105							

	n, l	a	ä	e	ē	i	ī	o	ö
dr				dred 32 dres 28 dren 36		driv 12 drigk 14			drö 18 drön 14
	$\frac{191}{8}$								
dw				dwel 12					
	$\frac{12}{1}$								
d	dn 16 dl 20 $\frac{3,657}{54}$	dam 15		ded 15 dek 17 def 16 dev 13 des 21 dem 34 den 21 dent 82 dents 13 dens 42 del 11	de 266 det 23 dez 78 den 24	di 835 did 134 dik 13 dif 63 dis 261 diz 22 diš 81 din 30	dr 63 dip 19 did 25 dil 27 dir 58	dök 22 döl 30	
kl	$\frac{210}{11}$	klas 22 klard* 12			klēm 14		klīn 18 klir 34	klök 23	
kr	$\frac{175}{10}$			kred 22		krit 19	kri 11 krit 14 kris 28 krist 15 krīm 12		krös 23
kw	$\frac{281}{13}$			kwes 45 kwest 17 kwent 14		kwip 15 kwit 12 kwik 18		kwen 13 kwel 17	kwör 24



u	ø	o	u	ü	ä	é	ai	ü
					dräv 37			
duk 22 dukt 15 dus 48 düz 69 dun 40	dä 24 däm 24 där 290 dörd 27 dörz 33	do 27 dönt 67		dü 239	dä 22 däd 11		dat 26 dän 99	dü 51 düs 39 düst 27 dür 47
		klos 19 kloz 12 klozd 19		klo 14 kloß 23				
					kra 14		kraud 15	
	kwöl 20				kwät 28 kwär 35 kwärd 23			

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	ɐ
k	kn 15 kl 17 3,724 60 klz 15	kap 66 kat 14 kam 19 kan 291 kant 23 ka: 88	kor 43 korz 18	kept 23 ket 21 ker 46	kē 89 kēt 33 kēs 71 kēm 82	ki 14 kin 13 kil 15	kɪp 47	kə 166 kēp 21 kēt 26 kēs 11 kēm 225 kēn 556 kēn 12 kəl 20 kər 26	kēt 11 kēz 145 kəl 47 kēld 34 kər 34 kōrd 28 kōrn 14
gl	33 2	glad 21							
gr	335 10	graf 11 gram 18		gres 16	grē 13 grēt 181		grɪ 30 grɪz 11		
g	1,461 36 gl 20	gaɪ 15 gan 42 gal 15	gar 19 gard 47	get 127 gets 13 geɪ 38 gest 11 gen 62 genst 73	gē 31 gēt 13 gev 36 gejd 11 gend 11	giv 121 givz 13 gin 38	get 55	gēn 20	
fl	69 4	flat 13							
fr	618 8			freɪ 21 frend 23 frendz 17	frēd 11		fri 50	frēm 433	

u	ø	o	u	ü	ä	é	ai	ü
kup 12	kø 36	ko 42	kud 147		kánd 53		kain 52	kü 34
kut 23	køl 127	kol 34					kaint 37	kür 28
kuv 49		kold 18						
kus 27		kort 20						
kum 270		kors 46						
kumz 32								
kun 113								
kul 40								
kur* 45								
		glo 12						
		gro 15					gränd 25	
		gron 15						
guv 78	gøn 27	go 179	gud 108					gi 17
gun 56	gøl 14	goz 13	gudz 17					
gunz 23	gar 33	gold 15						
guri* 32								
gurlz* 18								
			flu 16		flä 15		flair 25	
front 51					frät 12			

68 *Relativ Frequency of English Speech Sounds*

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	ə
f		fak 80 fakt 58 fakte 13 fast 16 fam 28 fan 21 farz* 18	fa 26 far 65 farm 35	fed 14 fek 21 fekt 70 fen 27 fend 24 fens 26 fel 35 felt 16 fer 34	fe 35 feh 21 fes 42 fel 32	fi 58 fit 27 fig 29 fif 28 fiz 13 fis 98 fin 20 fil 14 fild 12	fi 26 fit 44 fil 48 fild 23 fildz 11 fir 21	fel 61 fer 80 ferm 38 fermd 20	28 1136 38 20
	4,048 71								
v	vn 98	vast 13 van 27 vans 17 val 53		ves 32 vest 28 ven 31 vent 28 vel 27 ver 146	vē 49 vēd 12 vel 21	vi 44 vit 13 vik 32 vis 55 viz 18 viz 39 vij 17 vil 17		vel 15 velvd 15	
	1,364 38								
hr							hri 75		
	184 3								
h		hank 24				hi 11 hig 129 hink 93 hingz 82	hi 20 her 28 het 68		
	554 11								
d		dat 1346 dats 21 dan 184 dar* 335 darz* 11		dem 262 den 115	dē 478 dēr 323	di 13 dis 572	diz 152		
	4,090 16								
sp				spln 11					
	11 1								

u	ø	o	u	u	i	ø	ai	ü
fun 16	fæ 24	fo 11	fut 19	fūd 53	fā 45		fand 64	fū 100
fund 11	fær 23	fon 11	fūl 224		fāt 62			
fur* 81	fert 16	for 228			fād 37			
furst* 131		forū 24			fāv 49			
furm* 18		fora 59			fās 15			
		forst 27			fān 25			
					fānd 60			
					fār 23			
vur* 34	vø 12	vo 11			vā 28	vøs 19		vü 34
vurt* 12	væl 16	vot 25			vād 34			
vurs* 11	vør 251				vās 17			
					váz 13			
		hro 13	⑨ hrū 96					
hur* 37							hai 40	
hurd* 22								
dus 17	dær 97	dō 60						
		dōz 104						

70 *Relative Frequency of English Speech Sounds*

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	ə
spr $\frac{15}{1}$						sprɪŋ 15			
sp $\frac{280}{13}$				spek 20 spekt 35 spes 13 speɪ 35 spent 12		spi 14 spir 26	sptd 12 spɪk 31 spɪç 13	spən 45	
str $\frac{261}{12}$				streŋh 20 strɛt 28 strɛnj 28		strikt 12	strɪt 21		strɛŋ 2
st $\frac{617}{19}$		staf 12 stand 106 standz 12	start 22	step 14 sted 27	ste 38 stɛt 89 stɛj 12	sti 44 stil 58	stɪl 51		
skr $\frac{18}{1}$						skrip 18			
skw $\frac{18}{1}$		skwar* 18							
sk $\frac{36}{2}$						skɪl 11			

u	ø	o	u	ū	ī	ē	ai	ū
		spok 12			spāt 12			
struk 48 strukt 19 strug 11			stru 11		strāk 25	strē 15		
stur* 11	stønt 18 støns 21	ston 12 stor 23	stud 28	stūpt 19				
				skūl 25				

	n, l	a	o	e	ə	i	r	ø	ö
sm <u>54</u> I									smöl 54
sl <u>13</u> I					släv 13				
sw <u>18</u> I							swift 18		
s <u>5,188</u> 90	sat 50 sak 21 sam 13			se 15 sep 32 sept 41 set 86 sed 161 sek 56 sev 64 ses 69 sez 52 sel 14 sen 99 sent 120 sents 30 send 40 sens 35 sel 43 self 166 selvz 55	seš 207 sef 33 sev 49 sevd 17 sem 67 sel 21	si 263 sit 104 sid 58 sik 13 siks 49 sig 28 siv 68 sis 70 sist 19 siz 14 siç 41 sim 65 sin 28 sins 52 siŋ 19 sil 28	st 200 stit 19 sid 51 stk 17 stv 17 stvd 30 sts 11 stz 19 stin 20 stimd 26 stimz 30 stin 48	so 43 sort 21	
z <u>393</u> 14	zn 59 znz 32			zes 11 zen 12 zent 28	ze 40	zi 19 ziš 57			



u	e	o	u	ü	ä	ö	ai	ü
su 120	sə 16	so 446		sün 48	sä 48		sai 21	sü 34
sub 120	sən 40	sol 58			söt 32		sand 11	sut 21
suk 47	sənz 14	sold 15			säd 105			süm 20
sug 23	ser 52				sädz 17			
suf 16	sərz 27				söz 26			
sus 19								
suç 132								
sum 277								
sump 12								
sun 24								
sur* 178								
surv* 14								
surç* 14								
surñ* 14								
zult 37	zənd 27	zors 15			zär 23			
zurv* 20	zəndz 13							

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	ɜ
s		sal 120		sens 12 sel 15 selz 15 ser 11	sep 12	si 21 sip 77 sips 27	st 188 sin 27		sert 21
	$\frac{2,008}{21}$								
3									
	$\frac{47}{2}$								
ç		çap 14 çarj 39 çarjd 11	çek 21 çer 28	çenj 29 çenjɔ 15	çis 17 çil 39	çip 19 çif 20			
	$\frac{600}{19}$								
j				jek 21 jekt 66 jekts 14 jes 15 jest 33 jen 111 jent 13 jents 13		ji 40 jin 21	jeb 13 jer 13		
	$\frac{659}{21}$								
m		mat 90 mag 20 mas 30 man 218 mand 53 mar 25	mar 31 mark 18 marks 17	met 25 med 16 meh 26 mes 20 mez 17 mem 80 men 382 ment 402 ments 97 mend 18 mens 12	mē 210 mēt 16 mēd 179 mēk 141 mēks 26 mēn 59 mēl 13	mi 130 mit 124 mid 21 mis 68 miz 18 miš 27 min 83 mil 117 milk 20	mi 306 mit 63 min 34 minz 46 mtr 30	med 38 mek 12 men 13 mer 33	mēr 11 mērn 46
	$\frac{5,514}{74}$								

u	ə	o	ɹ	ʊ	ɪ	ɛ	ai	ü
sus 27 sən 923 sənz 212 səl 56	so 48 son 12 sol 12	sud 119 sür 53						
	ʒən 24		ʒu 23					
	ʒən 35 ʒənz 17		ʒu 47 ʒur 161 ʒurd 19 ʒurz 26		ʒald 32	ʒes 11		
jus 37 just 100 juj 23 jur* 15	jən 15 jər 30 jərz 36			jü 16		jē 14		
mʊd 31 mus 36 must 165 muç 107 mun 60 munh 28 munhs 35 muŋ 46 mul 14 mur* 30	mə 129 mən 126 məl 20 mər 29	mo 116 most 155 mor 221		müv 38 müvd 18	mä 341 mät 85 män 16 mänd 48 mäl 13 mälz 28		mant 43 mü 55	

76 *Relative Frequency of English Speech Sounds*

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	o
n	See page 80 <u>3,527</u> 51	naɪ 29 naç 21 nan 20		net 16 nek 15 nekst 44 nev 110 nes 264 nest 11 nent 20	nē 200 nēt 21 nēm 48 nēmz 14	ni 187 nit 30 nid 13 nif 15 niz 15 niš 30 nij 27	ni 23 nid 48 nidz 21 nir 61	net 596 nem 28 nen 20 nel 32	nēr 46 nērɪ 16
l	See page 80 <u>4,027</u> 63	lat 11 lak 16 last 86 land 36	lar 18 larj 69	let 121 lek 73 lekt 29 left 48 les 166 lej 13 lem 21 lent 29	lē 154 lēt 70 lēd 16	li 1201 lib 30 lit 152 lik 76 liv 71 livd 11 lis 18 list 43 liš 16 lij 26 lim 35 lin 28	li 22 lid 27 lif 11 liv 71 livz 11 lis 17 list 22	let 18 les 35 lest 28 lez 16 leɪ 147	
r	<u>3,314</u> 53	rap 15 raɪ 32		rep 38 red 79 rek 69 rekt 41 reg 19 ref 22 rev 20 res 27 rest 34 rez 12 rej 12 ren 15	rē 99 rēt 32 rēd 16 rēs 11 rēz 11 rēj 35 rēl 39	ri 1625 rit 22 rid 17 riz 26 riç 12 rin 12 rir 14	ri 193 rid 43 riç 24 riçt 13 rin 13 rir 13		rēɪ 32

u	ø	o	u	ü	á	é	ai	ü
nuf 44 nuh 61 num 58 nun 17	uø 27 nøns 22 nøl 63 ner 27	no 47 not 28 noz 32 non 45		nün 37	nát 64 nán 16		nai 210 nains 22 nainst 20	nü 182 nüz 33
luv 43 lurn* 15 lurnd* 16	lø 15 lør 73	lo 60 lon 50	luk 56 lukt 56	lüz 11	lá 39 lát 61 lák 133 láf 91 láz 26 lán 53 lânz 27	lè 25	laud 11	lü 31 lüt 20
rub 12 ruš 11 run 31	rø 75 røl 25	ro 44 rod 37 rodz 21 roz 18		rüm 24 rül 13	rá 30 rát 143 ráts 11 rád 14 rávd 15 ráz 14		raind 39	

78 *Relative Frequency of English Speech Sounds*

	n, l	a	ɑ	e	ē	i	ī	o	ē
w		wag 11 war* 22		wed 15 west 26 went 50 wel 122 welh 11	wē 211 wēt 35 wēst 15 wēz 30 wēj 11	wit 21 wiŋ 841 wiz 69 wiŋ 30 wim 48 win 50 wil 470	wi 537 wik 42 wiks 16	wēz 850 wēç 18	wē 5 wēnt 7 wēnts 1 wēr 22 wērd 1 wērm 1
	<u>5,553</u> 51								
y			yardz 16	yet 68 yes 57			ylr 60 ylrz 93	yend 19	
	<u>2,130</u> 21								
hw		hwar* 125		hwed 31 hwen 246		hwiç 454	hwit 38	hwet 277	
	<u>1,319</u> 9								
h		hap 69 haps 26 hab 13 had 414 haf 63 hav 658 haz 394 han 21 hand 57 handz 32	hor 15 hart 25 hard 31	hed 56 hev 45 hens 12 help 29 held 33 helh 12 her 25	het 11	hi 14 his 26 hiz 517 him 285	ht 696 htr 147	hes 16	hērs 3
	<u>5,051</u> 48								

u	ø	o	u	ü	i	é	au	ü
wun 412 wuns 59 wur* 328 wurd* 19 wurdz* 18 wurk* 124 wurks* 13 wurh* 23 wurs* 11 world* 106 worldz* 11	wærd 47	wont 17	wu 57 wud 281	wünd 11	wäd 14 wáf 12 wáz 26 wáld 11 wár 14			
yug 43	yæn 67 yænz 38 yær 21		yu 268 yut 16 yur 37 yurz 19	yü 862 yüs 48 yüz 54 yüzd 45 yün 13 yür 230 yürz 56				
					hwä 51 hwát 17 hwäl 80			
hvn 26 hur* 233 hurd* 31	hær 11	ho 11 hop 41 hom 69 hol 61 hold 51	hud 18	hü 252 hüz 42 hüm 28	há 100 hánd 24		hai 152 hais 70 haiz 23	hi 35

[illegible]



u	ø	o	u	ü	ä	é	au	ü
up 333	ø 316	o 707	u 127		ä 1259	é 20	alt 332	
ut 22	øpt 15	od 19	ud 11		äd 14		air 378	
ukts 21	øt 25	oz 24	ur 52		äv 20		airz 34	
uf 258	ød 35	on 276			dz 61			
us 282	øk 49	old 84			dzd 37			
um 25	øz 18				dun 30			
un 466	øn 386				äl 22			
ul 16	ønt 21							
ur* 53	ønd 26							
urk* 13	øns 41							
	ønz 104							
	øl 570							
	ølz 36							
	ør 2084							
	ørt 21							
	ørd 124							
	ørz 379							
	ørn 132							
<u>1,489</u>	<u>7,233</u>	<u>1,110</u>	<u>190</u>		<u>1,443</u>	<u>20</u>	<u>744</u>	
10	18	5	3		7	1	3	
<u>7,773</u>	<u>12,350</u>	<u>5,418</u>	<u>2,303</u>	<u>5,676</u>	<u>5,258</u>	<u>221</u>	<u>2,048</u>	<u>973</u>
119	90	77	31	36	84	10	28	25

TABLE 12 SUMMARY OF TABLE II

Initial sound	Occurrences	Items	Initial sound	Occurrences	Items
pl	460	16	spl	11	1
pr	1,061	24	spr	15	1
p	3,242	59	sp	280	13
bl	111	5	str	261	12
br	147	8	st	617	19
b	5,121	51	skr	18	1
tr	859	28	skw	18	1
tw	104	3	sk	36	2
t	8,123	77	sm	54	1
dr	191	8	sl	13	1
dw	12	1	sw	18	1
d	3,657	54	s	5,188	90
kl	210	11	z	393	14
kr	175	10	ʒ	2,008	21
kw	281	13	ʒ	47	2
k	3,724	60	ç	600	19
gl	33	2	j	659	21
gr	335	10	m	5,514	74
g	1,461	36	n	3,527	51
fl	69	4	l	4,027	63
fr	618	8	r	3,314	53
f	4,048	71	w	5,553	51
v	1,364	38	y	2,130	21
hr	184	3	hw	1,319	9
h	554	11	h	5,051	48
ɪ	4,090	16	Consonant	80,905	1,217

Initial sound	Occurrences	Items
n	526	4
l	322	3
<i>n, l</i>	848	7
a	6,721	22
ɑ	694	4
e	3,999	25
ē	621	5
i	13,069	20
ɪ	379	7
ə	5,381	10
ə	1,430	5
u	1,489	10
ə	7,233	18
o	1,110	5
u	190	3
ɒ		
<i>Vowel</i>	42,316	134
ä	1,443	7
ə	20	1
ai	744	3
<i>Diphthong</i>	2,207	11
ɲi	7,310	1
<i>Consonant</i>	80,905	1,217
<i>n, l</i>	848	7
<i>Vowel</i>	42,316	134
<i>Diphthong</i>	2,207	11
<b>Total</b>	<b>133,586</b>	<b>1,370</b>



## FONETIC ORDER — RIMING DICTIONARY ORDER

u	ø	o	u	ɪ	ɔ	ɛ	aɪ	ʊ
sump 12								
up 333 kup 12		hop 41			tép 14			
pub 83 sub 120 rub 12 trub 37								
	épt 15			stúpt 19				

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	θ
kt		akt 36 fakt 58 trakt 28		pekt 35 spekt 35 tekt 11 fekt 70 jekt 66 lekt 29 rekt 41		strikt 12			
$\frac{471}{14}$									
ft				left 48					
$\frac{48}{1}$									
kst				nekt 44					
$\frac{44}{1}$									
nst				genst 73					
$\frac{93}{2}$									
rst									
$\frac{158}{2}$									
st		past 47 fast 16 vast 13 last 86 trast 11		est 186 best 52 test 20 gest 11 vest 28 jest 33 nest 11 rest 34 prest 27 west 26 kwest 17	plest 14 west 15	list 48 sist 19 list 43	tst 13 list 22 krist 15	kst 26 lst 28	
$\frac{1,356}{32}$									

u	ø	o	u	ü	ä	ö	ai	iu
dukt 15 strukt 19			lukt 16					
							nainst 20	
furst* 131		forst 27						
just 100 must 165 trust 31		post 17 most 155						düst 27





u	ø	o	u	ü	d	ɛ	ai	ü
frunt 51	ent 21 tont 40 stant 18	dont 67 wont 17				pont 51	kant 37 mant 43	
zult 37								
vurt* 12	ert 21 fert 16	port 77 kort 20						

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	o
t	nt 119 8,841 94	at 612 pat 20 bat 58 kat 14 dat 1346 sat 50 mat 90 lat 11 flat 13		et 32 bet 38 ket 21 get 127 set 86 met 25 net 16 let 121 yet 68	et 97 tɛt 20 stɛt 89 dɛt 23 kɛt 33 gɛt 13 mɛt 16 nɛt 21 lɛt 70 rɛt 32 trɛt 12 strɛt 28 grɛt 181 wɛt 35 hɛt 11	it 1416 bit 20 fit 27 vit 13 sit 104 mit 124 nit 30 lit 152 rit 22 pɪt 27 kɪt 19 wɪt 21 kwɪt 12	ɪt 23 bɪt 12 fɪt 44 vɪt 19 sɪt 63 mɪt 41 tɪt 14 strɪt 21 krɪt 14 swɪt 18 hwɪt 38	et 67 get 55 net 596 let 18 hwet 277 brɛt 33	et 16 bɛt 11 tɛt 12 kɛt 11 hɛt 68 brɛt 33
lvd	$\frac{15}{1}$							velvd 15	
vd	$\frac{102}{6}$				sɛvd 17	lɪvd 11	stvd 30		
zd	$\frac{145}{5}$						plɪzd 16		
njd	$\frac{15}{1}$				ʃɛnjd 15				
rjd	$\frac{11}{1}$		ʃɑrjd 11						

u	e	o	u	ü	i	é	ai	ü
ut 22	ät 25	vot 25	put 73		spät 12		at 33	tüt 19
but 51		not 28	fut 19		fät 62		bat 15	süt 21
kut 23			yut 16		sät 32		dat 26	lüt 20
					mät 85			
					nät 64			
					lät 61			
					rät 143			
					frät 12			
					kwät 28			
					hwät 17			
				müvd 18	rävd 15			
				prüvd 11				
		poz 28		yüzd 45	äzd 37			
		klozd 19						

92 *Relative Frequency of English Speech Sounds*

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	ɐ
jd $\frac{11}{1}$					gejd 11				
rmd $\frac{20}{1}$									fɛrmd 20
md $\frac{26}{1}$							sɪmd 26		
rnd $\frac{57}{2}$									
nd $\frac{4,230}{28}$		and 3280 stand 106 mand 53 land 36 hand 57		end 43 pend 20 tend 46 fend 24 send 40 mend 18 frend 23	tend 31 gend 11			yend 19	
rld $\frac{106}{1}$									
ld $\frac{409}{13}$				held 33		bild 47 fild 12	fild 23		keld 34

u	ø	o	u	fl	d	ē	ai	ü
turnd* 41 lurnd* 16								
fund 11 end 26 zend 27				wünd 11	känd 53 fänd 60 mänd 48 händ 24		päund 24 faund 64 sänd 11 ränd 39 grand 25	
wurld* 106								
		old 84 told 34 kold 18 gold 15 sold 15 hold 51			çäld 32 wäld 11			



u	e	o	u	fi	á	é	ai	ü
hurd* 22 wurd* 19 hurd* 31	ærd 124 berd 16 tærd 29 dærd 27 wærd 47	bord 19	gurd 19		tærd 11 kwærd 23			
blud 12	æd 35	od 19 rod 37	ud 11 stud 28 kud 147 gud 108 sud 119 wud 281 hud 18	fud 53 klud 23	ád 14 dád 11 fád 37 vád 34 sád 105 plád 23 rád 14 wád 14		lad 11 krad 15	tud 24
work* 124								

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	θ
k		ak 104 pak 18 bak 87 tak 32 fak 80 sak 21 lak 16 blak 18 prak 44 trak 14		ek 99 spɛk 20 dek 17 fek 21 sek 56 ɟɛk 21 jek 21 nek 15 lek 73 rek 69	tɛk 171 mɛk 141 brɛk 22	ik 101 pik 34 tik 68 dik 13 vik 32 sik 13 lik 76 trik 26 kwik 18	sptk 31 sɪk 17 wik 42	ɔk 12 dɔk 22 mɔk 12 klɔk 23	tɔk 23
	2,193 50								
g		ag 12 mag 20 wag 11		beg 11 reg 19		big 55 fig 29 sig 28		ɔg 16 prɔg 15	
	250 12								
lf				self 166					
	166 1								
f		af 154 staf 12 graf 11 haf 63		ɛf 30 def 16 ref 22	sɛf 33	if 276 tif 11 dif 63 lif 28 nif 15	ɪf 20 lif 11	ɔf 96 prɔf 30	θf 72
	1,126 22								
lv				twelv 13					
	13 1								
rv									
	34 2								



u	ø	o	u	fi	d	ē	ai	ü
duk 22 suk 47 struk 48	æk 49	spok 12	buk 18 tuk 40 luk 56		lāk 133 strāk 25			
sug 23 strug 11								
suf 16 nuf 44					lāf 91 wāf 12			
surv* 14 zurv* 20								

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	ɐ
v		av 34 trav 20 hav 658		ev 308 dev 13 sev 64 nev 110 rev 20 hev 45	gev 36 sev 49 lev 13	iv 14 tiv 136 giv 121 siv 68 liv 71 driv 12	lv 27 stv 17 liv 71	ev 4001	
	6,268 31								
nh									
	28 1								
ŋh				streŋh 20					
	20 1								
lh				welh 11 helh 12					
	23 2								
rh									nerh 16
	76 4								
h				eh 17 meh 26	fɛh 21				
	212 7								
f		gaf 15 raf 32		gef 38 wef 15 hweɸ 31		wɪɸ 841			
	1,274 9								

u	ø	o	u	û	d -	é	ai	ü
buv 25 kuv 49 guv 78 luv 43				mûv 38 prûv 21	âv 20 fâv 49 drâv 37			
munh 28								
urh* 13 wurh* 23		forh 24						
nuh 61		boh 45		trûh 21			saih 21	
uñ 258 muñ 31 bruf 13								

100 *Relative Frequency of English Speech Sounds*

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	ɐ
ps $\frac{79}{3}$		haps 26				lips 27			
kts $\frac{59}{4}$		akts 11 fakts 13		jekts 14					
sts $\frac{43}{3}$				ests 11		ists 21		kests 11	
nts $\frac{181}{6}$				ents 16 dents 13 sents 30 jents 13 ments 97					wents 12
rts $\frac{58}{3}$			pairs 17						
ts $\frac{350}{5}$		facts 21		ets 12 gets 13		its 293			
rks $\frac{30}{2}$			marks 17						
ks $\frac{480}{8}$		taks 32		eks 295 meks 26	teks 14	siks 49	wks 16	preks 14	

u	ø	o	u	û	i	é	ai	ü
				trûps 26				
ukts 21								
purts* 12		ports 29						
					râts 11			
wurks* 13								
			buks 34					

102 *Relative Frequency of English Speech Sounds*

	n, l	a	ɑ	e	æ	i	ɪ	o	o
nh	35 1								
ns	589 17	vans 17 trans 51		ens 106 tens 23 dens 42 fens 26 sens 35 fens 12 mens 12 hens 12		sins 52			
ls	25 1			els 25					
rs	173 6								hers y
s	3,897 64	as 21 pas 65 mas 30 klas 22		es 94 spes 13 tes 13 des 21 ves 32 ses 69 zes 11 jes 15 mes 20 nes 264 les 166 res 27 pres 53 dres 28 gres 16 kwes 45 yes 57	bēs 11 kēs 71 fēs 42 pēs 81 rēs 11 dis 70 cis 17 mis 68 lis 18 his 26	is 181 tis 65 dis 261 vis 55 dis 572 sis 70 cis 17 mis 68 lis 18 his 26	pts 74 sis 11 lis 17 kris 28	pēs 194 pres 20 hēs 16	les 30 krēs 20

u	ø	o	u	ü	á	é	ai	ü
munhs 35								
wuns 59	ens 41 tens 36 stens 21 nens 22						nans 22	
vurs* 11 wurs* 11		kors 46 fors 59 zors 15						
us 282 tus 11 dus 48 kus 27 fus 17 sus 19 fus 27 jus 37 mus 36	pes 61	klos 19		yus 48	fás 15 vás 17 prás 43	vés 19 cés 11	hais 70	dus 39

104 *Relative Frequency of English Speech Sounds*

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	θ
ndz $\frac{118}{6}$		standz 12 handz 32		frendz 17				bendz 18	
rldz $\frac{11}{1}$									
ldz $\frac{11}{1}$							fildz 11		
rdz $\frac{34}{2}$			yardz 16						
dz $\frac{76}{4}$							ndz 21		
gz $\frac{104}{1}$				egz 104					
lvz $\frac{55}{1}$				selvz 55					
vz $\frac{47}{3}$						tivz 23 givz 13	livz 11		



u	ə	o	u	û	î	é	ai	ü
	zəndz 13						pəndz 26	
wurldz*11								
wurldz*18								
		rodz 21	gudz 17		sədz 17			

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	ɒ
rmz $\frac{17}{1}$									
mz $\frac{118}{4}$					nɛmz 14		smz 30		
nz $\frac{548}{12}$		planz 19			plɛnz 19 trɛnz 13		mɪnz 46		
ŋz $\frac{135}{2}$						ɪŋz 53 hɪŋz 82			
rɪz $\frac{18}{1}$									
lɪz $\frac{106}{4}$				elz 27 sɛlz 15					
ɪz $\frac{932}{16}$		farz* 18 dɪrɪz* 11 ⑦	karz 18				ɪrɪz 11 yɪrɪz 93		

u	ø	o	u	û	i	é	ai	ü
turmz* 17								
kumz 32					tômz 42			
tunz 16 gunz 23	senz 104 senz 14 senz 212 çenz 17 yenz 38				lânz 27			
gurlz* 18								
	elz 36				mâlz 28			
	ørz 379 perz 13 berz 53 terz 105 derz 33 serz 27 jorz 36		çurz 26 yurz 19	yûrz 56			airz 34	

	n, l	a	ɑ	e	ɛ	i	ɪ	ə	o
z	nz 20 znz 32 6,395 61	az 783 haz 394 lz 30 plz 34 blz 13 klz 15		ez 529 sez 52 rez 12 prez 99	dez 78 rez 11 wez 30	iz 1286 biz 114 tiz 115 diz 22 fiz 13 viz 18 siz 14 miz 18 niz 15 riz 26 priz 14 triz 24 wiz 69 hiz 517	tz 56 tɪz 152 sɪz 19 plɪz 17 grɪz 11	wəz 850	kəz 143 ləz 16
s	606 17	naɪ 29		peɪ 11 speɪ 35 seɪ 14 preɪ 30 freɪ 21		ɪs 84 bɪs 16 tɪs 16 dɪs 81 fɪs 98 zɪs 57 mɪs 27 nɪs 30 lɪs 16 wɪs 30			
ʒ	73 3			meʒ 17 pleʒ 17		viʒ 39			
ɱç	12 1			treɱç 12					
ɱç	14 1								

u	ø	o	u	ü	ä	é	ai	ü
duz 69	ez 18	oz 24 poz 35 goz 13 foz 104 noz 32 kloz 12 roz 18		lüz 11 yüz 54 hüz 42	üz 61 tüz 15 vüz 13 süz 26 lüz 26 plüz 20 rüz 14 prüz 14 wüz 26	büz 29	hüz 23	nüz 33
ruš 11								
surç* 14								



u	ø	o	u	ü	ä	é	ai	ü
tug 20 sug 132 mug 107								
juj 23								
furm* 18								
um 25 kum 270 sum 277 num 58	təm 14 dēm 24	hom 69		rīm 24 hīm 28	ām 30 tām 22			sīm 20

	n, l	a	ä	e	æ	i	ï	ö	ø
rn <u>291</u> 8									børn 11 kørn 14 mørn 46
n <u>13,102</u> 102	See page 116	an 462 pan 12 ban 12 kan 291 gan 42 fan 21 van 27 dan 184 man 218 nan 20 plan 25 han 21		en 678 pen 55 ten 87 den 21 gen 62 fen 27 ven 31 den 115 sen 99 zen 12 jen 111 men 382 splen 11 ren 15 dren 36 twen 31 hwen 246	pæn 19 tæn 43 dæn 24 mæn 59 plæn 45 træn 37	in 3284 pin 30 bin 329 tin 122 din 30 gin 38 fin 20 sin 28 jin 21 min 83 prin 20 win 50	tin 27 lin 27 sin 48 min 34 kin 18 rin 13 twin 60	ön 816 spön 45 kөн 556 mon 13 non 20 kwon 13	gön 20 drön 14
ŋ <u>2,957</u> 17		aŋ 17				iŋ 2353 kiŋ 13 hiŋ 129 siŋ 19 niŋ 27 liŋ 28 bliŋ 16 riŋ 14 spring 15 briŋ 23		kөŋ 12	lөŋ 147 rөŋ 32 strөŋ 23



u	ə	o	u	ü	i	é	ai	ü
burn* 12 turn* 47 suru* 14 lurn* 15	ern 132							
un 466 dun 40 kun 113 gun 56 fun 16 sun 24 mun 60 nun 17 run 31 wun 412 hun 26	æn 386 bæn 12 tæn 13 gæn 27 sæn 40 læn 923 zæn 24 çæn 35 jæn 15 mæn 126 yæn 67	on 276 ston 12 lon 11 lon 12 non 45 lon 50 gron 15		sün 48 nün 37 yün 13	fán 25 mán 16 nán 16 lán 33		tain 19 dain 99 kain 52	tün 17
muŋ 46 yuŋ 43								

114 *Relative Frequency of English Speech Sounds*

	n, l	a	ɑ	e	æ	i	ɪ	ə	θ
rl									
$\frac{32}{1}$									
l	See page 116 $\frac{4,671}{74}$	al 23 gal 15 val 53 lal 120		el 63 pel 12 tel 100 del 11 fel 35 vel 27 sel 43 fel 15 wel 122 dwel 12	tél 21 fél 32 vél 21 sél 21 mél 13 rél 39	il 25 bil 82 til 108 stil 58 kil 15 skil 11 fil 14 vil 17 sil 28 çil 39 mil 117 wil 470	stil 51 dil 27 fil 48	el 35 pél 27 tél 11 dél 30 kél 20 fél 61 vél 15 nél 32 kwél 17	el 679 kél 47 fél 28 amél 54
r	$\frac{12,189}{108}$	ar* 23 par 30 par* 19 bar 18 kar 88 r̄ar* 335 nar 25 skwar* 18 war* 22 hwar* 125	ar 642 par 107 bar 23 kar 43 gar 19 far 65 mar 31 lar 18 har 15	er 18 per 23 ber 36 ter 30 ker 46 fer 34 ver 146 her 11 çer 28 her 25	er 20 d̄er 323 (8)	spir 26 p̄ir 14 d̄ir 58 fir 21 m̄ir 30 n̄ir 61 kl̄ir 34 r̄ir 13 ȳir 60 h̄ir 147	pir 14 dir 58 fir 21 mir 30 nir 61 k̄ir 34 rir 13 yir 60 hir 147	ter 15 k̄er 26 f̄er 80 h̄er 28 j̄er 13 m̄er 33 w̄er 221 kw̄er 24	er 602 p̄er 34 k̄er 34 f̄er 1136 m̄er 11 n̄er 46 w̄er 221 kw̄er 24

u	ø	o	u	ü	ä	ë	ai	ü
guri* 32								
ul 16 kul 40 mul 14	el 570 tøl 119 køl 127 gøl 14 vøl 16 føl 56 møl 20 nøl 63 røl 25 trøl 20 kwøl 20	kol 34 sol 58 føl 12 trøl 25 høl 61	ful 224	skül 25 rül 13	äl 22 mäl 13 hwäl 80	ël 20		
ur* 53 pur* 194 bur* 11 tur* 57 stur* 11 kur* 45 fur* 81 vur* 34 hur* 37 sur* 178 jur* 15 mur* 30 wur* 328 hur* 233	er 2084 per 235 ber 142 ter 575 der 290 ger 33 fer 23 ver 251 der 97 ser 52 jer 30 mer 29 ner 27 ler 73 yer 21 her 11	por 47 bor 13 stor 23 for 228 mor 221	ur 52 gur 161 yur 37	pür 24 tür 12 für 53 yür 230	tär 34 fär 23 zär 23 wär 14 kwär 35		är 378 flär 25	pür 17 tür 11 dür 47 kür 28

[illegible]

u	ø	o	u	ü	ä	é	ai	ü
su 120	pe 3167	po 707	tu 127	tü 3152	dä 1250	bé 15	pai 77	bü 49
	pe 72	po 153	tu 305	dü 239	bä 644	jé 14	hai 40	tü 28
	tø 63	to 179	zu 23	jü 16	tä 24	lé 25	nai 210	dü 51
	de 24	do 27	su 47	blü 11	dä 22	jé 22	hai 152	kü 34
	kø 36	ko 42	flu 16	klü 14	fä 45	stre 15		gü 17
	fø 24	go 179	stru 11	trü 30	vä 28			fü 100
	vø 12	fo 11	wu 57	hrü 96	sä 48			vü 34
	sø 16	vo 11	yu 268	yü 862	mä 341			sü 34
	me 129	do 60		hü 252	lä 39			mü 55
	ne 27	so 446			plä 39			nü 182
	lø 15	lo 48			flä 15			lü 31
	rø 75	mo 116			rä 30			hü 35
	trø 14	no 478			prä 30			
		lo 60			trä 45			
		glo 12			krä 14			
		ro 44			hwä 51			
		pro 226			hä 100			
		bro 17						
		tro 30						
		gro 15						
		hro 13						
		ho 11						
<u>120</u>	<u>3,674</u>	<u>2,885</u>	<u>854</u>	<u>4,672</u>	<u>2,774</u>	<u>91</u>	<u>479</u>	<u>650</u>
<u>1</u>	<u>13</u>	<u>22</u>	<u>8</u>	<u>9</u>	<u>17</u>	<u>5</u>	<u>4</u>	<u>12</u>
<u>7,773</u>	<u>12,350</u>	<u>5,418</u>	<u>2,393</u>	<u>5,676</u>	<u>5,258</u>	<u>221</u>	<u>2,048</u>	<u>973</u>
<u>119</u>	<u>90</u>	<u>77</u>	<u>31</u>	<u>36</u>	<u>84</u>	<u>10</u>	<u>28</u>	<u>25</u>

TABLE 14. SUMMARY OF TABLE 13

Final sound	Occurrences	Items	Final sound	Occurrences	Items
mp	12	1	sk	53	2
lp	29	1	ŋk	150	4
p	1,072	23	lk	20	1
b	532	12	rk	142	2
mpt	18	1	k	2,193	50
pt	98	4	g	250	12
skt	36	1	lf	166	1
kt	471	14	f	1,126	22
ft	48	1	lv	13	1
kst	44	1	rv	34	2
nst	93	2	v	6,268	31
rst	158	2	nh	28	1
st	1,356	32	ŋh	20	1
št	19	1	lh	23	2
çt	13	1	rh	76	4
nt	1,456	25	h	212	7
lt	79	3	đ	1,274	9
rt	377	11	ps	79	3
t	8,841	94	kts	59	4
lvd	15	1	sts	43	3
vd	102	6	nts	181	6
zd	145	5	rts	58	3
njd	15	1	ts	350	5
rjd	11	1	rks	30	2
jd	11	1	ks	480	8
rmd	20	1	nhs	35	1
md	26	1	ns	589	17
rnd	57	2	ls	25	1
nd	4,230	28	rs	173	6
rld	106	1	s	3,897	64
ld	409	13			
rd	593	20			
d	4,219	66			

Final sound	Occurrences	Items	Final sound	Occurrences	Items
ndz	118	6	n	572	6
rldz	11	1	l	953	7
ldz	11	1	n, l	1,525	13
rdz-	34	2			
dz	76	4	a	686	1
gz	104	1	ɑ	37	2
lvz	55	1	e	141	3
vz	47	3	ē	3,030	21
rmz	17	1	i	9,657	25
mz	118	4	ī	3,921	21
nz	548	12	o	343	3
ŋz	135	2	ō	224	5
rlz	18	1	u	120	1
lz	106	4	ə	3,674	13
rz	932	16	o	2,885	22
z	6,395	61	u	854	8
ʃ	606	17	ū	4,672	9
ʒ	73	3	Vowel	30,244	134
nç	12	1			
rç	14	1	ä	2,774	17
ç	936	13	ē	91	5
nj	92	3	ai	479	4
rj	108	2	ü	650	12
j	405	15	Diphthong	3,994	38
zm	30	1			
rm	124	5			
m	3,388	41			
rn	291	8	ñ	7,310	1
n	13,102	102	Consonant	90,513	1,184
ŋ	2,957	17	n, l	1,525	13
rl	32	1	Vowel	30,244	134
l	4,671	74	Diphthong	3,994	38
r	12,189	108	Total	133,586	1,370
Consonant	90,513	1,184			





## **Part 4—Sounds**



## Part 4

### Sounds

#### Relativ frequency of the simple sounds of English

Any statement of the relativ frequency of the simple sounds of English must, to hav definit, general, or comparativ value, make unmistakably clear the fonetic basis on which it rests, with respect to

- 1) The number, and nature, of the sounds distinguisht,
- 2) The authority for pronunciation adopted, and
- 3) The particular treatment accorded the words *the* and *a*, and the so-cald "neutral vowel," ə.

The Revised Scientific Alfabet used as Key 1 of the Standard Dictionary, is a medium precision, 48 sound, fonetic alfabet for English, based on the American Filological Association alfabet of 1876. The basis and detaild structure of this alfabet ar explaind with admirable simplicity and clearness in the *Spelling and Pronunciation* preface of the unabridged Standard Dictionary (editions since 1911) which should be consulted by all interested in this aspect of the problem.

As the Standard Dictionary was adopted, for reasons previously discust, as the authority for pronunciation for this investigation, the maximum of information was obviously to be secured by performing the primary analisis of sounds on the 48 sound basis of Key 1, making possible any desired treatment or presentation of final results simply by combining the separate unit data thus secured in various forms.

On the 48 sound basis of Key 1, the "neutral vowel" offers no problem, for the simple, definit treatment of the unstrest vowels is perhaps the most distinctiv characteristic of this alfabet. On any basis, however, the particularly common words *the* and *a* require separate consideration, for each has alternativ correct pronunciations, concurrently used by careful speakers. Thus, (Standard Dictionary): *the*, ðɪ (named or emfatic);

ɾɪ (unemphatic before a vowel); ɾə (unemphatic before a consonant). *a*, *ə* (unaccented, ə).

To consider 10% of the occurrences of each of these 2 words as named or emphatic or accented is a maximum assumption so far as I can deduce from observation and the estimates of others. As the proportion of initial vowels to initial consonants is roughly 1 to 2, the unemphatic 90% of occurrences of *the* may properly be distributed as 30% ɾɪ, and 60% ɾə. This basis is adopted in Table 15 following, which shows, in fonetic order, the total frequency of occurrence of each of the 48 sounds distinguished by the Standard Dictionary, and the number of different items or places in which each occurs, in the 100,000 words counted and analyzed.

In Table 15 only, the Revised Scientific Alphabet is used instead of the S S B key alphabet in order to represent the 7 additional vowel and diphthong sounds \* distinguished by the former. See Appendix A for statement of the slight differences between these alphabets. The 7 additional sounds interpolate readily and obviously in the fonetic order adopted.

As the general purpose of this investigation was not only to introduce into the study of phonetics an important quantitative element heretofore lacking, but also to provide data of immediate practical value in the teaching of English, and in fonetic writing of English, more particularly fonetic shorthand writing, it is obvious that these data should be organized on a fonetic basis of maximum simplicity, minimum precision, sufficient for these purposes. The large experience of Pitmanic shorthand has demonstrated, I think conclusively, that 40 sounds (considering *ç* and *j* as simple sounds, and counting the 4 vowel diphthongs *ai* *ei* *au* *iu*) represent the extreme minimum with which strictly fonetic writing of English may be achieved. By *strictly* I refer to no particular degree of precision but to strict adherence to the principle: one sign for each sound, one sound for each sign.

The S S B key alphabet here adopted differs from the minimum 40 sound basis of Pitmanic shorthand practice

\* See page 126 following.

TABLE 15 RELATIV FREQUENCY OF THE SIMPLE SOUNDS OF ENGLISH ON THE 48 SOUND BASIS OF THE REVISED SCIENTIFIC ALFABET. ARRANGED IN FONETIC ORDER

Sound	%	Occur- rences	Items	Sound	%	Occur- rences	Items
p	2.04	7,620	1,960	a	3.50	13,060	1,445
b	1.81	6,750	1,175	ā	.23	881	141
t	7.13	26,550	4,495	æ	.22	820	120
d	4.31	16,050	3,100	ɑ	.02	95	50
k	2.71	10,100	2,700	ā	.47	1,740	306
g	.74	2,760	635	e	3.44	12,800	3,170
f	1.84	6,860	1,135	ē	1.84	6,863	1,317
v	2.28	8,490	910	i	4.42	16,493	4,151
th	.37	1,380	210	ī	4.11	15,301	1,826
th	3.43	12,780	116	I	2.12	7,921	876
s	4.55	16,970	4,155	ø	2.81	10,450	1,050
z	2.97	11,070	2,050	ā	1.26	4,701	491
sh	.82	3,052	846	u	1.70	6,360	1,115
3	.05	170	51	ū	.63	2,350	440
ch	.52	1,930	350	ø	4.63	17,264	2,937
j	.44	1,630	495	o	.33	1,230	415
m	2.78	10,360	1,840	ō	1.30	4,859	763
n	7.24	26,980	4,375	u	.69	2,570	450
ŋ	.96	3,590	1,035	ū	1.60	5,961	311
l	3.74	13,930	3,290	Vowel	35.32	131,719	21,374
r	6.88	25,620	5,420	ai	1.59	5,923	857
w	2.08	7,760	555	ei	.09	345	105
y	.60	2,230	245	au	.59	2,215	235
h	1.81	6,755	485	iu	.02	60	35
Consonant	62.10	231,387	41,628	iū	.29	1,080	290
Vowel	35.32	131,719	21,374	Diphthong	2.58	9,623	1,522
Diphthong	2.58	9,623	1,522				
Total	100.00	372,729	64,524				

the 7,310 assumed; āt 10%; āl 30%; āe 60%  
a 2,120 " e 10%; ø 90%

only in its recognition of the "neutral vowel" and its treatment of the word *the*. It differs from the 48 sound basis of the Revised Scientific Alphabet only in its treatment of the word *the* and in ignoring the 7 finest distinctions of the latter. These are:

Between the u of <i>feud</i>	and of <i>futility</i>
" a <i>art</i>	" <i>artistic</i>

The vowel of *fast*, distinguished as a hybrid, neither the a of *fat* nor the a of *far*.

Between the o of <i>note</i>	and of <i>obey</i>
" i <i>bit</i>	" <i>habit</i>
" a <i>bat</i>	" <i>bare</i>
" u <i>but</i>	" <i>burr</i>

The first 5 of these combinations are sufficiently obvious. Of the 6th I may say that my personal judgment, confirmed by those advisers in whom I have most confidence, is that the vowel (Revised Scientific Alphabet *ā*) of *bare* resembles more closely the *e* of *bet* than the *a* of *bat*, and might therefore be more appropriately combined with the former. Of the 7th my personal judgment, confirmed by the International Phonetic Association alphabet, as nearly final authority as the next field of phonetics affords, is that the vowel (Revised Scientific Alphabet *ə*) of *burr* differs slightly in quality as well as quantity from the *u* of *but*, but is identical except for *stress* with the "neutral vowel" *ə* of *member*, and might therefore be more appropriately combined with the latter. On both these points however it has seemed more useful to adhere strictly to the basis of classification implied by the Revised Scientific Alphabet, as used in the Standard Dictionary, making the combinations tabulated above. Those interested in separate consideration of these 2 sound classifications will find syllables containing these 2 sounds (the *a* of *bare* and the *u* of *burr*) distinguished by a \* throughout the syllable tables, while the frequency of the sounds alone appears, of course, in Table 15.

One reason for separate treatment of the commonest word, *the*, is suggested by the discussion of its alternative correct pronunciations (page 123 preceding.) Another is that shorthand practice almost invariably, and properly,

treats the word *the* with a separate sign; so that for purposes of shorthand construction, data not subject to the markt influence of this commonest word are more accurately significant. A third reason is the markt economy of effort of a single sign, as compared with 2 fonetic or 3 *a b c* letters, for the most frequent word of English, which occurs more often than do over half of the simple sounds, in a fonetic print notation. Both on theoretic and practical grounds a separate logotype for the word *the* seems a happy solution.

This fonetic basis of the S S B key alfabet, which involvs the minimum of assumption (with respect to *the*, *a*, and *ə*) wil be designated for explicit distinction the 41 + 1 sound basis (the Pitmanic 40 sounds plus *ə*, and plus *di*).

Table 16 following givs, in fonetic order, the relativ frequency of the separate simple sounds of English speech, showing the per cent which each is of the total, the total number of its occurrences in 100,000 words, and the number of different places in which each occurrd; on the 41 + 1 sound basis above described.

In Table 17 following, the left hand columns show the relativ frequency of English speech sounds, on the 41 + 1 sound basis, arranged in order of frequency of their total occurrence. The column heded Occurrences ÷ Items givs an incidental mesure (inverse) of what might be cald the versatility of each sound — whether it occurs chiefly in a few words of great importance, as with *fi*, or in many words of relatively infrequent occurrence, as with *ŋ* or *j*. The right hand columns show in detail the frequency of occurrence of each sound initially, medially, finally, or alone in sillables; and initially, medially, finally, or alone in words. These latter analitic data ar of indispensable importance to any study of language structure as a scientific basis for shorthand construction, and wil be significant in much more general linguistic study.

The arrangement in order of frequency shows that, of the 42 fonetic elements distinguisht:

The first	4	sounds	make up	over	25 %	of the total
"	9	"	"	50 %	"	"
"	19	"	"	75 %	"	"

TABLE 16. RELATIV FREQUENCY OF THE SIMPLE SOUNDS OF ENGLISH ON THE 41 + 1 SOUND BASIS OF THE SSB KEY ALFABET. ARRANGED IN FONETIC ORDER

Sound	%	Occur- rences	Items	Sound	%	Occur- rences	Items
p	2.08	7,620	1,960	a	4.04	14,761	1,706
b	1.84	6,750	1,175	ɑ	.50	1,835	356
t	7.27	26,550	4,495	e	3.50	12,800	3,170
d	4.39	16,050	3,100	ē	1.88	6,863	1,317
k	2.77	10,100	2,700	i	8.12	29,601	5,976
g	.76	2,760	635	ī	1.96	7,190	875
f	1.88	6,860	1,135	ə	2.86	10,450	1,050
v	2.32	8,490	910	ē	1.29	4,701	491
h	.38	1,380	210	u	2.38	8,710	1,555
ŋ	1.50	5,470	115	ə	3.52	12,878	2,936
s	4.64	16,970	4,155	o	1.66	6,089	1,178
z	3.03	11,070	2,050	u	.70	2,570	450
ʃ	.84	3,052	846	ŋ	1.63	5,961	311
ʒ	.05	170	51	Vowel	34.04	124,409	21,371
ç	.53	1,930	350	ā	1.61	5,923	857
j	.45	1,630	495	ē	.09	345	105
m	2.83	10,360	1,840	ai	.61	2,215	235
n	7.38	26,980	4,375	ū	.31	1,140	325
ŋ	.98	3,590	1,035	Diphthong	2.62	9,623	1,522
l	3.82	13,930	3,290				
r	7.02	25,620	5,420				
w	2.12	7,760	555				
y	.61	2,230	245				
h	1.85	6,755	485				
Consonant	61.34	224,077	41,627				
Vowel	34.04	124,409	21,371				
Diphthong	2.62	9,623	1,522				
ŋī	2.00	7,310	1				
Total	100.00	365,419	64,521				

a 2,120 assumed: ē 10% ə 90%



To facilitate comparative study of the more fonetic of existing shorthand systems, and other minimum precision fonetic notation schemes, the data on relative frequency of sounds are reduced to the 40 sound basis and presented, in order of frequency, in Table 18 following. This reduction, with its non-recognition of the "neutral vowel" involves treating *the* and *a* as occurring only with their formal stress pronunciation, and distributing the occurrences of *ə* in accord with the most usual treatment of such occurrences in Pitmanic shorthand, as indicated at the bottom of the table.

Fonetists are to-day agreed as to the definite and constant character of the *neutral vowel* or *low unstress vowel*, *ə*, which furnishes one of the most perplexing problems of the spelling reformer or shorthand inventor of 2 generations ago; so that a fonetic notation primarily to be read in print which did not include a sign for this sound would be unthinkable for any purpose, however "popular" or general; and experience shows that the average layman has no difficulty in recognizing this sound clearly in a fonetic print. But in the present fonetic innocence of the general public, created and maintained by the non-fonetic character of the present heterogeneous conventional spelling, there is some question whether the average layman could use this sound intelligently in writing, in shorthand or otherwise. Table 17 may therefore be regarded as presenting the optimum, and probably feasible, basis of popular fonetic understanding; Table 18 the minimum basis, already proved practicable.

TABLE 17. RELATIVE FREQUENCY OF ENGLISH SPEECH SOUNDS, ON THE 41 + I SOUND BASIS OF THE S S B KEY ALPHABET. ARRANGED IN ORDER OF FREQUENCY

Sound	% Occur- rences	Items	Occurrences			Syllabic analysis				Word analysis				Sound
			Items	Initial	Medial	Final	Syllabic	Initial	Medial	Final	Word			
i	8.12	29,601	5,976	4.96	9,943	10,010	6,431	3,217	6,730	18,750	4,121			i
n	7.38	26,980	4,375	6.17	3,977	8,460	14,200	343	2,590	15,650	8,740			n
t	7.27	26,550	4,495	5.91	9,620	2,410	14,520		5,150	9,630	11,770			t
r	7.02	25,620	5,420	4.73	3,720	9,370	12,530		2,255	14,995	8,370			r
s	4.64	16,970	4,155	4.08	7,850	2,120	7,000		5,575	6,765	4,630			s
d	4.39	16,050	3,100	5.13	4,290	520	11,240		2,760	3,480	9,810			d
a	4.04	14,761	1,706	8.65	6,109	7,945	21	686	6,690	8,071				a
l	3.82	13,930	3,290	4.23	4,606	3,190	5,870	264	2,090	7,575	4,265			l
ə	3.52	12,878	2,936	4.31	4,131	5,030	550	3,167	840	10,040	90		1,908	ə
e	3.50	12,800	3,170	4.03	3,895	8,740	55	110	1,700	11,100				e
z	3.03	11,070	2,050	5.40	548	300	10,220	2	15	1,530	9,525			z
ə	2.86	10,450	1,050	9.97	5,265	4,850	180	155	5,120	5,330				ə
m	2.83	10,360	1,840	5.63	5,830	570	3,960		4,020	4,015	2,325			m
k	2.77	10,100	2,700	3.74	5,400	1,730	2,970		3,990	4,680	1,430			k
u	2.38	8,710	1,555	5.60	1,550	7,040	120		1,230	7,480				u
v	2.32	8,490	910	9.33	1,640	350	6,500		540	2,635	5,315			v
w	2.12	7,760	555	13.98	5,810	1,950			5,480	2,280				w
p	2.08	7,620	1,960	3.89	5,325	885	1,410		3,425	3,640	555			p
fi	2.00	7,310	1	—				7,310					7,310	fi
i	1.96	7,190	875	8.22	204	2,990	3,810	186	350	4,030	2,810			i

e	f	h	b	o	u	a	ə	ɪ	ʃ	g	y	ɔ	u	j	h	u	ə	z

TABLE 18 RELATIV FREQUENCY OF ENGLISH SPEECH SOUNDS  
ON THE 40 SOUND BASIS OF STANDARD PITMANIC SHORTHAND,  
ARRANGED IN ORDER OF FREQUENCY

Sound	%	Occur- rences	Items	Sound	%	Occur- rences	Items
i	7.94	29,601	5,976	f	1.84	6,860	1,135
n	7.24	26,980	4,375	h	1.81	6,755	1,185
t	7.13	26,550	4,495	b	1.81	6,750	1,175
r	6.88	25,620	5,420	o	1.63	6,089	1,178
u	5.02	18,750	4,320	ŋ	1.60	5,961	311
s	4.55	16,970	4,155	ä	1.59	5,923	857
d	4.31	16,050	3,100	ə	1.26	4,701	491
a	4.17	15,601	1,841	ŋ	.96	3,590	1,035
l	3.89	14,500	876	ʃ	.82	3,052	846
e	3.74	13,930	3,290	g	.74	2,760	635
ŋ	3.44	12,800	3,170	u	.69	2,570	450
z	3.43	12,780	116	y	.60	2,230	245
ə	2.97	11,070	2,050	ai	.59	2,215	235
m	2.81	10,450	1,050	c	.52	1,930	350
k	2.78	10,360	1,840	ɑ	.52	1,925	391
ē	2.71	10,100	2,700	j	.44	1,630	495
v	2.35	8,771	1,317	h	.37	1,380	210
w	2.28	8,490	910	ū	.31	1,140	325
p	2.08	7,760	555	ē	.09	345	105
	2.04	7,620	1,960	3	.05	170	51
	81.76	304,753	53,516		18.24	67,976	11,005
					81.76	304,753	53,516
				Total	100.00	372,729	64,521

the 7,310 assumed: ŋ  
a 2,120 " ē  
ə 10,970 " { a 840 (initial in words)  
u 10,040 (medial " )  
ɑ 90 (final " )

## *General Summary*

The outstanding feature of this study is the degree to which a comparatively small part of the commoner words, syllables, or sounds, of English form, by their frequent repetitions, a large part of our ordinary speech. In general summary, for the 100,000 words investigated:

9 words are found to form over	} 25% {	of the total words
12 syllables		" syllables
4 sounds		" sounds
69 words	} 50% {	" words
70 syllables		" syllables
9 sounds		" sounds
732 words	} 75% {	" words
339 syllables		" syllables
19 sounds		" sounds
1027 words occurring over 10 times	form 78.6%	of the words
1370 syllables	" form 93.4%	" syllables
41 + 1 sounds	form 100%	" sounds

Intensiv study of these commoner words and syllables, and the simple sounds, wil thus suffice to giv an organized and fairly adequate quantitativ conception of the fonetic structure of modern English.



## Appendix A\*

## A Simple Fonetic Key Alfabet for General Use

There is urgent need for a minimum precision fonetic key alfabet of maximum simplicity, for general popular use as distinct from the purposes of the professional fonologist. Such an alfabet wil be of constant and general usefulness—in teaching reading or the pronunciation of English to children or adults; in the teaching of shorthand, which writes by sound, not by spelling; and for all purposes involving accurate expression of English pronunciation in print or longhand, including the literature of spelling reform. The various instruments thus far available for such purposes ar all, in various degrees, unsatisfactory. These ar, chiefly:

The "Webster" notation and similar complex diacritic schemes, obscure, fonetically misleading, and altogether objectionable; long since repudiated by all filologists or fonetists.

The International Fonetic Association alfabet, designed to cover all languages with a maximum of scientific precision, using a basic alfabet of 65 different letters with numerous modifiers which serv to distinguish several hundred different sounds; a valuable tool of the professional fonetician, but for general popular use for English too complex and over-refined, and *tipografically strange*.

The Revised Scientific Alfabet, often referd to as the N E A (National Education Association) alfabet, used as Key 1 of the New Standard Dictionary and its abridgments; based on the 1877 alfabet of the American Filological Association. This is a medium precision alfabet for English, distinguishing 48 sounds; incomparably the best for its purpose ever devised, but stil too complex for the simplest general popular use.

The fonetic key alfabet here presented, used for fonetic key purposes in all publications of the Simplified Spelling Board, is strictly in harmony thruout with the Revised Scientific Alfabet, on which it is based.

(10) \* A circular of the Simplified Spelling Board.

## Fonetic Key Alphabet

## 24 CONSONANTS

Print	Script	Name	As in
p	<i>p</i>	<i>pi</i>	pin, cup
b	<i>b</i>	<i>bi</i>	bin, cub
t	<i>t</i>	<i>ti</i>	ten, bet
d	<i>d</i>	<i>di</i>	den, bed
k	<i>k</i>	<i>ki</i>	come, back
g	<i>g</i>	<i>gi</i>	gum, bag
f	<i>f</i>	<i>ef</i>	fan, safe
v	<i>v</i>	<i>ev</i>	van, save
h	<i>h</i>	<i>eh</i>	thigh, bath
θ	<i>θ</i>	<i>eθ</i>	thy, bathe
s	<i>s</i>	<i>es</i>	seal, race
z	<i>z</i>	<i>ez</i>	zeal, raise
ʃ	<i>f</i>	<i>ef</i>	assure, rush
ʒ	<i>z</i>	<i>ez</i>	azure, rouge
ç	<i>ç</i>	<i>eç</i>	choke, rich
j	<i>j</i>	<i>ej</i>	joke, ridge
m	<i>m</i>	<i>em</i>	met, him
n	<i>n</i>	<i>en</i>	net, thin
ŋ	<i>ŋ</i>	<i>en</i>	ink, thing
l	<i>l</i>	<i>le</i>	laid, deal
r	<i>r</i>	<i>re</i>	raid, dear
w	<i>w</i>	<i>we</i>	wet, quit
y	<i>y</i>	<i>ye</i>	yet, you
h	<i>h</i>	<i>he</i>	head, who

## 13 VOWELS

Print	Script	Name	As in
a	<i>a</i>	<i>at</i>	am, pat, (pair)
ɑ	<i>ɑ</i>	<i>a</i>	alms, part, ma
e	<i>e</i>	<i>et</i>	edge, let
ē	<i>ē</i>	<i>ē</i>	age, late, may
i	<i>i</i>	<i>it</i>	is, sit, army
ī	<i>ī</i>	<i>ī</i>	ease, seat, me
o	<i>o</i>	<i>ot</i>	odd, not
ō	<i>ō</i>	<i>ō</i>	awed, naught
u	<i>u</i>	<i>ut</i>	up, ton, (turn)
ə	<i>ə</i>	<i>ər</i>	about, utter, na- tion, china
o	<i>o</i>	<i>o</i>	open, tone, show
u	<i>u</i>	<i>ut</i>	full, could
ū	<i>ū</i>	<i>ū</i>	fool, shoe

## 4 DIPHTHONGS

Print	Script	Name	As in
ai	<i>ai</i>	<i>i</i>	aisle, pint, by
oi	<i>oi</i>	<i>i</i>	oil, point, boy
au	<i>au</i>	<i>au</i>	out, power, now
iu	<i>iu</i>	<i>iu</i>	pure, few

## SUPPLEMENTARY SIGNS

θi *θi* =

A wordsign or logotype for the commonest word of English, *the*.

\* \* \* *capsign*

Fonetic print capitals are heavy or bold-face letters, otherwise similar to the small letters. To capitalize a fonetic longhand word, write the capsign before it.



For most teaching or manuscript purposes the *disjoind* long-hand letters below, similar in form to the print letters, will be preferable to the script forms, which necessarily differ somewhat from the print, just as common script differs from common print.

p b t d k g f v h ð s z ſ ʒ ʒ j m n ŋ l r w y h  
a a e ē i î o ô u o u ū i o' a u ð ð \*

### liŋkən'z getizburg spiq

forskor and sevn yīrz ago air faðarz brēt forh en ðis kontinent ə nū nēſən, kənstvd in libərti, and dedi-kēted tū ði prəpozisən ðat əl men ar kriēted ikwəl.

na wi ar engejd in ə grēt sivil wōr, testiŋ hwēðar ðat nēſən, ər eni nēſən so kənstvd and so dedikēted, kan lōŋ endūr. wi ar met ən ə grēt batl-fīld əv ðat wōr. wi hav kum tū dedikēt ə por-sən əv ðat fīld az ə fānəl restiŋ-plēs fōr ðoz hū hīr gēv ðēr lāvz ðat ðat nēſən māt liv. it iz əltəgedər fitiŋ and prəpər ðat wi sud dū ðis,

but in ə larjər sens, wi kanət dedikēt — wi kanət kensikrēt — wi kanət halo — ðis grand. ði brēv men, liviŋ and ded, hū strugld hīr, hav kən-sikrēted it fər əbuv air pūr pəwər tū ad ər ditrakt. ði wuld wil litl not nēr lōŋ rimembər hwet wi sē hīr, but it kan nevər fōrget hwet ðē did hīr. it iz fōr us, ði liviŋ, raðər, tū bi dedikēted hīr tū ði unfiništ wurk hwiç ðē hū fēt hīr hav ðus fər so nobli advanst. it iz raðər fōr us tū bi hīr dedikēted tū ði grēt task rimēniŋ bīfər us — ðat frəm ðiz ənərd ded wi tēk inkrist divoſən tū ðat kōz fōr hwiç ðē gēv ði last ful mezur əv divoſən; ðat wi hīr hāli rizelv ðat ðiz ded šal nēt hav dād in vən; ðat ðis nēſən, undər gød, šal hav ə nū burh əv frīdəm; and ðat guvərnmənt əv ði pīpl, bā ði pīpl, fōr ði pīpl, šal nēt perīš frəm ði urh.

# 138 *Relative Frequency of English Speech Sounds*

The linear order and fonetic names of the present alfabet ar based on establisht shorthand practis, for which they ar both logical and convenient.

Brief study wil enable any one to read the selection on the preceding page. An hour's study wil giv any one at all familiar with fonetics a thoro working knowledge of the key, which meets fully the 2 essentials of a strictly fonetic notation: one and only one sound for each sign, and one and only one sign for each sound.

The only differences between this alfabet and the Revised Scientific Alfabet as used in the Standard Dictionary series ar these: all easily masterd in 10 minutes by any one familiar with the latter—

SSB key	a a i u o i u	h d f c	a e a u	th	e i o u
Revised	a a i u o i u	th th sh dh	ai ei au iu	thI	e i o u
Scientific	a a i o o i u			thI	
Alfabet	a			the	

1 Reduction to a minimum precision 41 sound basis from the medium precision 48 sound basis, by ignoring the 7 finest distinctions of the latter—at best negligible, at worst confusing, for practical popular use.

2 Simple single letters in place of the 4 consonant digraf ligatures temporarily adopted by the N E A committee as a concession to visual prejudice.

3 Single letters, each an obvious blend of the 2 fonetic elements, for the 4 vowel difthongs, in place of writing the difthong by its 2 component letters—a gain in clearness and simplicity in harmony with shorthand practis.

4 A logotipe for the commonest word of English, *the*, which has 3 different pronunciations concurrently used by careful speakers; combining logical simplicity with efficiency.

5 Slightly curving the macron over the markt long vowels as a constant reminder not to use the misleading Webster "name-sounds" for these letters.

General use of this key alfabet for all popular fonetic purposes wil conduce to simplicity and clearness, and go far toward clarifying the now sadly deficient popular understanding of the elementary essential fonetic facts of English.

SIMPLIFIED SPELLING BOARD  
4 Emerson Hall, Harvard University  
Cambridge, Mass.

December, 1922

## Appendix B

## Consonant compounds of English

Altho these tables giv qualitativ rather than quantitativ information as to the fonetic structure of English, they ar particularly suggestiv in connection with the quantitativ data of this investigation.

Tables B1, B3, B5 present respectively those preceding, sillabic, and following consonant compounds, and consonants, which I hav noted in the course of this study, or at other times, with key words for each. Tho I hav excluded from Table B1 a dozen or more distinctly foren compounds, occurring only in proper names or tecnicl terms of foren origin, these tables ar more complete than any that I hav seen, and certainly contain all compounds of anything like common occurrence in English. Entries enclosed in parentheses are compounds which do not occur more than 10 times in the material of this study. About half (in each table) of those so markt do occur from 1 to 10 times in this material.

Table B1—and also B3, sillabic compounds—is arranged in fonetic order, like Table 12. Table B5 is arranged in reverse fonetic order, like Table 14.

Tables B2, B4, B6 present the same preceding, sillabic, and following consonant compounds and consonants, each in a classified arrangement which emfazes the extent to which the whole group may be regarded as the product of a very few combining consonants acting as modifiers of the rest of the consonant alfabet. This striking and important fact may be summarized as follows:

## Consonant compounds and consonants

<i>Preceding</i>	<i>Sillabic</i>	<i>Following</i>
$\left. \begin{matrix} s \\ o \end{matrix} \right\} \begin{matrix} ' \\ o \end{matrix} \left\{ \begin{matrix} l- \\ r- \\ w- \\ o- \end{matrix} \right.$	$\left. \begin{matrix} ' \\ o \end{matrix} \right\} \left\{ \begin{matrix} n \\ nd \\ nz \\ l \\ ld \\ lz \end{matrix} \right.$	$\left. \begin{matrix} -l \\ -r \\ -o \end{matrix} \right\} \begin{matrix} ' \\ o \end{matrix} \left\{ \begin{matrix} t \\ ts \\ d \\ dz \\ s \\ z \\ o \end{matrix} \right.$
57/57 = 100 %	50/51 = 98 %	135/181 = 75 %

In the above summaries, and in the tables following, the hyphen represents the place of the vowel of the syllable; the apostrophe represents the place of any consonant which may occur in such a combination; and the italic *o* represents the absence of any consonant at that point. Thus, substituting the consonant *p* for the apostrophe in the above summaries, they would denote the following consonant compounds and consonants occurring in the succeeding tables:

<i>Preceding</i> (also)	<i>Syllabic</i> (also)	<i>Following</i> (also)						
spl- sl-	pn n	-lpt	-pt	-lt	-rt	-t		
spr- sw-	pnd nd	-lps	-pts	-lts	-rts	-ts		
sp- s-	pnz nz	-lp	-ps	-ld	-rd	-d		
pl- l-	pl l	-rpt	-p	-ldz	-rdz	-dz		
pr- r-	pld ld	-rpts		-ls	-rs	-s		
p- w-	plz lz	-rps		-lz	-rz	-z		
		-rp		-l	-r			

The summary figures express the fact that all 57 of the preceding, 50 of the 51 syllabic, and 135 of the 181 following compounds and consonants, may be reduced to the forms symbolized above. Note particularly that the preceding group involves only 4, the syllabic group only 4, the following group only 6, and all 3 groups together only 8 different combining consonants, to produce 196/243 (excluding 46 single consonant occurrences) or over 80 % of all consonant compounds here reported.

TABLE B1 57 PRECEDING CONSONANT COMPOUNDS  
AND CONSONANTS. IN FONETIC ORDER,  
WITH KEY WORDS

				Summary	
pl-	place	spl-	split		
pr-	price	spr-	spring		23
p-	part	sp-	speak	'l-	5
bl-	black	str-	street	'r-	9
br-	brought	st-	still	'w-	6
b-	be	(skl-	sclerosis)		
tr-	true	skr-	scrape	s'-	8
tw-	twelve	skw-	square		
t-	to	sk-	school	s'l-	2
dr-	drive	(sf-	sphere)	s'r-	3
dw-	dwelt	sm-	small	s'w-	1
d-	do	(sn-	snow)	<i>Total</i>	<i>57</i>
kl-	clear	sl-	slow		
kr-	crowd	sw-	sweet		
kw-	quite	s-	so		
k-	can	z-	zone		
gl-	glad	(ſr-	shrewd)		
gr-	great	ſ-	she		
(gw-	guano)	ʒ-	jardiniere		
g-	good	ʒ-	charge		
fl-	flour	j-	just		
fr-	from	m-	my		
f-	for	n-	not		
v-	very	l-	like		
hr-	thru	r-	right		
(hw-	thwart)	w-	was		
h-	thing	y-	you		
ð-	that	hw-	which		
		h-	he		
		<u>57</u>			

TABLE B2 57 PRECEDING CONSONANT COMPOUNDS  
AND CONSONANTS. CLAST

[illegible]

TABLE B3 51 SYLLABIC CONSONANT COMPOUNDS AND CONSONANTS. IN FONETIC ORDER, WITH KEY WORDS

				Summary	
open	pn	even	vn		
(opened	pnd)	(evened	vnd)	'n	6
(opens	pnz)	(evens	vnz)	'nd	5
people	pl	(evil	vl)	'nz	6
(peopled	pld)	(naveled	vld)	n, nt, nd, nz	4
peoples	plz	(evils	vlz)		21
cable	bl	(heathen	fn)	'l	9
(cabled	bld)	(heathens	fnz)	'ld	9
cables	blz	reason	zn	'lz	9
title	tl	(reasoned	znd)	l, ld, lz	3
(titled	tld)	reasons	znz		30
(titles	tlz)	(foozle	zl)	Total	51
garden	dn	(foozled	zld)		
(gardened	dnd)	(foozles	zlz)		
(gardens	dnz)	happen	n		
handle	dl	doesn't	nt		
(handled	dld)	happened	nd		
(handles	dlz)	happens	nz		
broken	kn	battle	l		
(betokened	knd)	battled	ld		
(tokens	knz)	battles	lz		
article	kl		51		
(articled	kld)				
articles	klz				
single	gl				
(singled	gld)				
(singles	glz)				
(trifle	fl)				
(trified	fld)				
(trifles	flz)				

TABLE B4 51 SILLABIC CONSONANT COMPOUNDS  
AND CONSONANTS. CLAST

	'n	'nd	'nz	'l	'ld	'lz	
<i>o</i>		*nt					
<i>o</i>	n	nd	nz	l	ld	lz	
<i>p</i>	pn	pnd	pnz	pl	pld	plz	
<i>b</i>				bl	bl d	bl z	
<i>t</i>				tl	tl d	tl z	
<i>d</i>	dn	dnd	dnz	dl	dl d	dl z	
<i>k</i>	kn	knd	knz	kl	kl d	kl z	
<i>g</i>				gl	gl d	gl z	
<i>f</i>				fl	fl d	fl z	
<i>v</i>	vn	vnd	vnz	vl	vld	viz	
<i>n</i>	ñn		ñnz				
<i>z</i>	zn	znd	znz	zl	zld	ziz	
	7	7	7	10	10	10	Total 51
Single	1			1			2
Double	6	2	1	9	1	1	20
Triple		5	6		9	9	29
							Total 51

\* Irregular



TABLE B5 182 FOLLOWING CONSONANT COMPOUNDS  
AND CONSONANTS. IN REVERSE FONETIC ORDER —  
RIMING DICTIONARY ORDER — WITH KEY WORDS

(grasp -sp)	reached -çt	milk -lk
stamp -mp	(burnt -rnt)	work -rk
help -lp	sent -nt	take -k
(sharp -rp)	built -lt	(burg -rg)
up -p	part -rt	big -g
(bulb -lb)	it -t	(triumph -mf)
(curb -rb)	(bulbed -lbd)	self -lf
job -b	(curbed -rbd)	(scarf -rf)
(grasped -spt)	(rubbed -bd)	if -f
tempt -mpt	(begged -gd)	twelve -lv
(helped -lpt)	solved -lvd	serve -rv
(warped -rpt)	(served -rvd)	of -v
kept -pt	moved -vd	(depth -ph)
asked -skt	(breathed -fd)	(eighth -th)
(thanked -ñkt)	(adzed -dzd)	(width -dh)
(milked -lkt)	(cleansed -nzd)	(fifth -fh)
(worked -rkt)	used -zd	(sixth -ksh)
fact -kt	(rouged -zd)	month -nh
(triumphed -mft)	changed -njd	strength -ñh
(engulfed -lft)	(bulged -ljd)	health -lh
(dwarfed -rft)	charged -rjd	worth -rh
left -ft	gaged -jd	both -h
(unearthed -rht)	(chasmed -zmd)	with -f
(lathed -ht)	(filmed -lmd)	(grasps -sps)
(11) (lapsed -pst)	formed -rmd	(stamps -mps)
next -kst	seemed -md	(helps -lps)
danced -nst	turned -rnd	(harps -rps)
(whilst -lst)	and -nd	ships -ps
first -rst	(longed -ñd)	(tempts -mpts)
must -st	world -rld	(excerpts -rpts)
(welshed -lft)	old -ld	(scripts -pts)
wished -st	hard -rd	(instincts -ñkts)
(branched -nçt)	had -d	facts -kts
(filched -lçt)	ask -sk	(gifts -fts)
(searched -rçt)	think -ñk	(texts -ksts)

(bursts	-rstš)	words	-rdz	turn	-rn
lasts	-sts	needs	-dz	in	-n
cents	-nts	(burgs	-rgz)	long	-ŋ
(belts	-lts)	eggs	-gz	girl	-rl
parts	-rts	selves	-lvz	all	-l
its	-ts	(serves	-rvz)	for	-r
(asks	-skš)	gives	-vz		<u>181</u>
(thanks	-ŋks)	(bathes	-fz)		
(milks	-lks)	(prisms	-zmz)		
works	-rks	(films	-lmz)	Summary	
books	-ks	terms	-rmz	-'	21
(nymphs	-mfš)	times	-mz	-'t, -'d	22
(gulfs	-lfs)	(turns	-rnz)	-'t, -"d	36
(dwarfs	-rfs)	lines	-nz		
(cuffs	-fs)	things	-ŋz	-'s, -'z	18
(depths	-phš)	girls	-rlz	-'s, -"z	29
(eighths	-thš)	miles	-lz		
(widths	-dhš)	years	-rz	-'ts, -'dz	10
(fifths	-fhš)	is	-z	-'ts, -"dz	6
(sixths	-kshš)	(welsh	-lš)		
months	-nhš	(harsh	-rš)	Other -"	37
(lengths	-ŋhš)	fish	-š		
(healths	-lhš)	rouge	-ʒ	-ksh, kshš	<u>2</u>
(births	-rshš)	trench	-nʒ	Total	<u>181</u>
(deaths	-hš)	(filch	-lʒ)		
since	-ns	search	-rʒ		
else	-ls	such	-ʒ		
force	-rs	change	-nj		
this	-s	(bulge	-lj)		
(bulbs	-lbz)	large	-rj		
(verbs	-rbz)	judge	-j		
(jobs	-bz)	chasm	-zm		
hands	-ndz	(film	-lm)		
worlds	-rldz	form	-rm		
fields	-ldz	from	-m		

TABLE B6 182 FOLLOWING CONSONANT COMPOUNDS  
AND CONSONANTS. CLAST

	Group					-t -d	-s -z	-ts -dz	-st -zd	-sts
	1	2	3							
			m n ŋ	l	r					
-p		-sp	-mp	-lp	-rp	-pt -spl -mpt -lpt -rpt	-ps -sps -mps -lps -rps	-pts -mpts -rpts	-pst	
-b				-lb	-rb	-bd -lbd -rbd	-bz -lbz -rbz			
See columns {	-t						-ts	(12)		
	-d						-dz	-dzd		
	-k						-kt -skt -ŋkt -lkt -rkt	-ks -skz -ŋks -lks -rks	-kts -ŋkts	-kst -ksts
-g		-sk	-ŋk	-lk	-rk	-gd -rgd	-gz -rgz			
-f			-mf	-lf	-rf	-ft -mft -lft -rft	-fs -mfs -lfs -rfs	-fts		
-v				-lv	-rv	-vd -lvd -rvd	-vz -lvz -rvz			
-h						-ht -phs -ths -dhs -fhs	-hs -phs -ths -dhs -fhs			
	-ph									
	-th									
	-dh									
	-fh									
		*-ksh					*-kshs			
			-nh				-nhs			
			-ŋh				-ŋhs			
				-lh			-lhs			
				-rh			-rhs			
-d						-ht -dtd	-hs -dts			

\* Irregular

[illegible]

## Appendix C

## Expansion of Table 9

TABLE C 1370 COMMONEST SYLLABLES, CLASSED BY VOWELS,  
SHOWING INITIAL, MEDIAL, FINAL, AND WORD OCCURRENCES  
OF EACH

Syllable	Total Oc	It	Initial Oc	It	Medial Oc	It	Final Oc	It	Word Oc	It
<i>n</i>										
n	343	76			46	19	297	57		
nt	119	17					119	17		
vn	98	4					98	4		
zn	59	15			13	8	46	7		
nd	44	22					44	22		
pn	41	5			9	3	32	2		
znz	32	4					32	4		
nz	20	10					20	10		
dn	16	4			2	2	14	2		
kn	15	3					15	3		
	787									
<i>l</i>										
bl	386	138			1	1	385	137		
l	264	45			19	9	245	36		
pl	218	12					218	12		
plz	34	8					34	8		
lz	30	4					30	4		
tl	28	7			16	3	12	4		
ld	28	18					28	18		
dl	20	8			1	1	19	7		
gl	20	7			1	1	19	6		
kl	17	9					17	9		
klz	15	8					15	8		
blz	13	8					13	8		
	1,073									
<i>a</i>										
and	3280	1							3280	1
fat	1346	2			1	1			1345	1

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
az	783	2					1	1	782	1
a	686	215	673	204	13	11				
hav	658	3	41	2					617	1
at	612	13	10	5	5	4	3	3	585	1
an	462	20	131	27	1	1			330	1
had	414	2	3	1					411	1
haz	394	4	4	3					390	1
dar*	335	9	29	8					306	1
kan	291	24	97	10	7	4			187	1
man	218	27	57	21	4	4	1	1	156	1
fan	184	1							184	1
ad	177	60	156	52	9	6			12	2
af	154	10	152	8	2	2				
am	126	20	25	10	26	9			75	1
hwar*	125	14	12	8			30	5	83	1
sal	120	1							120	1
stand	100	12	30	5	14	5	19	1	43	1
ak	104	34	98	29	4	3	2	2		
mat	90	11	80	5	8	5	2	1		
kar	88	12	88	12						
bak	87	9	9	5	1	1	2	2	75	1
last	86	4	7	2	2	1			77	1
fak	80	16	35	7	45	9				
hap	69	12	61	10	8	2				
kap	66	12	64	11			2	1		
pas	65	16	33	11	11	3	1	1	20	1
haf	63	2					5	1	58	1
bat	58	10	56	9			2	1		
fakt	58	1							58	1
hand	57	7	9	5			2	1	46	1
val	53	10	53	10						
mand	53	9			23	7	30	2		
trans	51	18	51	18						
sat	50	9	32	7	4	1			14	1
past	47	3					1	1	46	2
prak	44	10	42	8	2	2				
gan	42	4			19	3	23	1		
ask	37	2	7	1					30	1
land	36	7	8	3			3	3	25	1
akt	36	8	8	2	8	3	5	2	15	1
askt	36	1							36	1
ab	34	18	30	17			4	1		

\* For explanation of \* marking, see pp. 46 and 126.

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
av	34	6	33	5					1	1
tab	33	10	7	5	26	5				
tak	32	7	5	3	8	2	18	1	1	1
taks	32	5	11	3			12	1	9	1
rad	32	1	32	1						
handz	32	1							32	1
par	30	9	9	4	14	4	7	1		
mas	30	9	20	6	2	2			8	1
naſ	29	4	22	2	7	2				
aj	29	8	5	2	24	6				
trakt	28	8	5	2	6	4	17	2		
fam	28	4	28	4						
van	27	9	6	4	20	4			1	1
haps	26	1					26	1		
plan	25	2	3	1					22	1
pard*	25	6			2	1	23	5		
mar	25	6	25	6						
bad	24	3	8	1					16	2
ſank	24	2	3	1					21	1
ap	24	12	24	12						
kant	23	3			1	1			22	2
ar*	23	1							23	1
al	23	16	9	8	14	8				
klas	22	6	8	5					14	1
war*	22	8	12	3			4	4	6	1
glad	21	1							21	1
fan	21	7	12	6					6	1
naç	21	4	21	4						
ſats	21	1							21	1
sak	21	5	20	4					1	1
han	21	7	21	7						
as	21	12	14	8	7	4				
pat	20	5	20	5						
trav	20	12	17	10	3	2				
nan	20	8	7	4	13	4				
mag	20	9	20	9						
planz	19	1							19	1
par*	19	10	1	1	5	5	3	2	6	2
baŋk	19	7	7	4	2	2			10	1
kam	19	5	19	5						
pak	18	5	15	4					3	1
blak	18	6	5	5					13	1
bar	18	8	13	4	5	4				

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
gram	18	5	1	1			15	3	2	1
'farz*	18	3					18	3		
skwar*	18	3	2	1			8	1	8	1
vans	17	4			5	3	12	1		
an	17	11	16	10	1	1				
task	16	1							16	1
fast	16	5	3	2	1	1	1	1	11	1
lak	16	4	5	3					11	1
dam	15	5	6	3					9	2
gaŋ	15	5	9	4					6	1
gal	15	10	14	9	1	1				
rap	15	4	15	4						
trak	14	5	1	1	9	3			4	1
kat	14	7	12	6					2	1
çaŋ	14	4	12	3					2	1
flat	13	5	6	4					7	1
fakts	13	1							13	1
vast	13	3	3	2					10	1
sam	13	4	13	4						
hab	13	4	10	2	3	2				
paç	12	3			4	1	8	2		
pan	12	11	6	5	5	5			1	1
ban	12	8	8	5	4	3				
klard*	12	1					12	1		
staf	12	2					1	1	11	1
standz	12	2					4	1	8	1
ag	12	7	11	6	1	1				
trast	11	2			1	1	10	1		
graf	11	6			4	4	7	2		
'farz*	11	2							11	2
lat	11	1	11	1						
wag	11	2	11	2						
akts	11	1							11	1
	13.453									
a										
ar	642	30	100	29					542	1
part	123	11	11	4	28	4	5	2	79	1
par	107	26	88	22	17	3			2	1
larj	69	5	27	2	2	1	1	1	39	1
far	65	3	1	1			1	1	63	1
gard	47	10	1	1	15	4	26	4	5	1



Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
kar	43	15	24	12	2	2			17	1
çarj	39	5	12	3			4	1	23	1
farm	35	6	22	5					13	1
hard	31	5			29	3	2	2		
mar	31	11	31	11						
hard	31	7	10	6					21	1
fa	26	3	26	3						
hort	25	8	6	6	1	1			18	1
bar	23	13	13	9	4	3			6	1
start	22	3	13	2					9	1
orm	22	4	15	3					7	1
gar	19	6	15	5			4	1		
art	19	3	5	2					14	1
karz	18	1							18	1
mark	18	6	1	1	4	2	5	2	8	1
lar	18	1	18	1						
parts	17	1							17	1
marks	17	2					9	1	8	1
yardz	16	2					6	1	10	1
har	15	7	14	6	1	1				
çarjd	11	2					3	1	8	1
a	11	2			1	1			10	1
1,560										
e										
ed	907	384	6	4	7	7	894	373		
en	675	121	581	95	35	21	59	5		
ez	529	202					529	202		
ment	402	86			5	5	389	80	8	1
men	382	46	138	10	44	19	36	16	164	1
ev	308	23	243	13	65	10				
eks	295	108	289	102	6	6				
nes	264	82	38	2	13	6	213	73		
ñem	262	2	34	1					228	1
hwen	246	2	9	1					237	1
est	186	49			27	4	159	45		
self	166	11	12	3	3	1	134	6	17	1
les	166	54	14	5	13	9	86	39	53	1
ent	162	36			26	9	136	27		
sed	161	1							161	1
ver	146	2	146	2						
get	127	9	16	1	4	4	18	3	89	1

154 *Relative Frequency of English Speech Sounds*

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
wel	122	4	9	3					113	1
let	121	10	57	3			13	6	51	1
sent	120	13	2	1	19	3	32	7	67	2
den	115	1							115	1
jen	111	28	91	17	15	9	5	2		
nev	110	4	110	4						
e	110	19	64	13	46	6				
ens	106	27			19	7	87	20		
egz	104	30	101	29					3	1
tel	100	14	34	9	10	3	5	1	51	1
prez	99	8	99	8						
sen	99	37	79	27	20	10				
ek	99	29	82	24	17	5				
ments	97	42					97	42		
es	94	28	69	17	7	5	18	6		
ten	87	26	21	8	42	17			24	1
set	86	14	23	6	2	2	13	5	48	1
em	86	38	73	33	2	2	5	2	6	1
dent	82	18			15	4	67	14		
mem	80	11	46	6	34	5				
red	79	7	24	3	27	1	1	1	27	2
genst	73	1					73	1		
lek	73	20	1	1	72	19				
fekt	70	12			23	6	47	6		
ses	69	12			37	9	32	3		
rek	69	31	44	22	21	8			4	1
yet	68	1							68	1
jekt	66	11			14	6	52	5		
sev	64	7	64	7						
el	63	32	16	8	18	14	29	10		
gen	62	1					62	1		
yes	57	3	34	2					23	1
sek	56	9	54	7	2	2				
hed	56	12	18	6	1	1	10	4	27	1
pen	55	27	13	10	38	16			4	1
selvz	55	3					55	3		
pres	53	18	10	4	18	11	12	2	13	1
best	52	1							52	1
tem	52	21	21	10	11	9	20	2		
sez	52	1							52	1
went	50	1							50	1
left	48	1							48	1
tend	46	17	2	2	26	9	16	5	2	1

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
ker	46	8	23	7					23	I
kwes	45	5	44	4	I	I				
hev	45	7	45	7						
nekt	44	I							44	I
ej	44	8	II	4	I	I	29	2	3	I
sel	43	14	23	7	2	2	7	3	II	2
end	43	4					10	3	33	I
dens	42	14	2	I	I	I	39	12		
sept	41	6			10	4	31	2		
rekt	41	11			20	6	21	5		
send	40	6	5	I	6	3	I	I	28	I
bet	38	3	32	I			I	I	5	I
tent	38	15			6	4	27	10	5	I
gef	38	2			38	2				
rep	38	12	37	11	I	I				
ber	36	11	16	7	I	I			19	3
dren	36	2					36	2		
pekt	35	9			16	5	19	4		
spekt	35	8			27	6	8	2		
fel	35	5	19	3	2	I			14	I
spe	35	5	35	5						
sens	35	9	2	I	3	2	11	5	19	I
dem	34	12	21	7	13	5				
fer	34	9	7	3	13	4			14	2
rest	34	9	5	3	5	2	6	5	18	I
jest	33	4			9	I	23	2	I	I
held	33	4					4	3	29	I
dred	32	8	9	5	I	I	22	2		
ves	32	8	19	3	13	5				
sep	32	17	15	5	17	12				
et	32	16			5	4	27	12		
twen	31	2	31	2						
ven	31	16	11	5	20	11				
hwen	31	I	31	I						
pre	30	7	17	2	13	5				
ter	30	10	27	7	2	2			I*	I
sents	30	I							30	I
ef	30	3	29	2	I	I				
lekt	29	11			14	6	15	5		
lent	29	8			I	I	27	6	I	I
help	29	3	4	2					25	I
dres	28	7	4	2	6	2	16	2	2	I

\* Should be tar 1/1.

156 *Relative Frequency of English Speech Sounds*

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
vest	28	8			19	5	8	2	1	1
vent	28	9			11	6	17	3		
zent	28	7			19	4	9	3		
çer	28	7	15	6					13	1
prest	27	7					21	6	6	1
fen	27	3			27	3				
vel	27	10	2	2	25	8				
sted	27	7	9	5			17	1	1	1
res	27	8	7	4	3	2	17	2		
elz	27	8					27	8		
fens	26	7	1	1	4	2	19	3	2	1
meh	26	2	26	2						
west	26	5	6	2			5	2	15	1
met	25	5	3	2	1	1	1	1	20	1
her	25	10	9	5	5	3			11	2
els	25	3	9	2					16	1
fend	24	6			19	5	5	1		
per	23	12	6	4	17	8				
tens	23	6			1	1	22	5		
kept	23	2					1	1	22	1
friend	23	4	5	2	1	1			17	1
kred	22	7	11	1	7	5	4	1		
ref	22	8	22	8						
des	21	11	19	9	2	2				
den	21	12	2	2	19	10				
ket	21	7	1	1	3	3	17	3		
frej	21	4			2	2	1	1	18	1
fek	21	9			21	9				
çek	21	2							21	2
jek	21	12			21	12				
lem	21	3	3	2			18	1		
pend	20	9	5	1	11	6	4	2		
test	20	8	3	2	5	3	2	2	10	1
spek	20	11	7	5	13	6				
streng	20	2	1	1					19	1
nent	20	6					20	6		
mes	20	7	10	4	7	2			3	1
rev	20	11	18	9	2	2				
reg	19	10	17	8	2	2				
tempt	18	5	2	1	7	2	9	2		
mend	18	9	1	1	13	6	4	2		
er	18	10	11	6			5	2	2	2
plez	17	2	17	2						

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
dek	17	9	16	8	1	1				
kwest	17	5			3	2	10	2	4	1
frendz	17	1							17	1
mez	17	4	17	4						
eh	17	13					17	13		
te	16	8	5	2	11	6				
def	16	6	15	5	1	1				
gres	16	5			10	4	6	1		
felt	16	2					1	1	15	1
net	16	8	4	2	5	2	3	3	4	1
med	16	9	16	9						
ents	16	8					16	8		
ded	15	4	11	3					4	1
se	15	3	2	1	13	2				
fel	15	4	8	3					7	1
felz	15	1							15	1
jcs	15	8	4	2	11	6				
nek	15	4	1	1	11	2			3	1
ren	15	5	7	2	8	3				
wed	15	3	15	3						
bred	14	3	1	1					13	2
kwent	14	7			7	3	7	4		
fed	14	4	9	1	2	2			3	1
step	14	1							14	1
sef	14	6	6	1	8	5				
jekts	14	5					14	5		
twelv	13	1							13	1
tes	13	4	13	4						
dev	13	5	11	4	2	1				
dents	13	5					13	5		
gets	13	2					1	1	12	1
apes	13	5	13	5						
jent	13	8			2	2	11	6		
jents	13	3					13	3		
lej	13	6	11	4	1	1			1	1
pel	12	6			3	2	9	4		
trenç	12	2	7	1					5	1
dwel	12	7	7	6					5	1
spent	12	1							12	1
zen	12	3			12	3				
sens	12	3			1	1	11	2		
mens	12	2					12	2		
rez	12	7	12	7						

158 *Relative Frequency of English Speech Sounds*

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
rej	12	6	12	6						
hens	12	2	3	1					9	1
helh	12	4	4	2	1	1			7	1
ets	12	6					12	6		
peſ	11	2			11	2				
bed	11	2	2	1					9	1
beg	11	2	1	1					10	1
tekt	11	4			4	2	7	2		
del	11	6	8	3	3	3				
gest	11	4					3	2	8	2
splen	11	3	11	3						
zes	11	5			6	4	5	1		
ſer	11	4	3	3					8	1
nest	11	6			3	2	7	3	1	1
welh	11	3	1	1			4	1	6	1
ests	11	2					11	2		
<hr/>										
	12,076									
ē										
ſte	478	1							478	1
e	464	72	88	21	163	49			213	2
ſter	323	2							323	2
de	266	25	19	6	15	11	131	7	101	1
we	211	17	3	3	2	1	99	11	107	2
me	210	14	17	6	33	7			160	1
sē	207	17	36	5	59	10	1	1	111	1
nē	200	41	123	13	75	27			2	1
grēt	181	6	47	5					134	1
mēd	179	5	2	1			4	2	173	2
tēk	171	19	68	2	5	4	12	12	86	1
tē	160	41	18	4	142	37				
le	154	45	70	15	58	27	17	2	9	1
mēk	141	6	35	4	1	1			105	1
pē	140	28	75	17	22	10			43	1
re	99	39	17	7	81	31	1	1		
et	97	49	6	3	50	33	18	12	23	1
kē	89	41	15	5	74	36				
stēt	89	6	53	5					36	1
kēm	82	2					11	1	71	1
plea	81	9	21	2	6	4	2	2	52	1
dēz	78	5					4	2	74	3
kēs	71	2	19	1					52	1

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
let	70	30	22	3	23	18	13	8	12	1
sēm	67	1							67	1
mēn	59	12	28	6	3	2	12	3	16	1
bē	54	18	46	13	3	3	2	1	3	1
trē	54	15	4	2	49	12	1	1		
vē	49	21	21	6	22	12	6	3		
sēv	49	3	16	2					33	1
nēm	48	3	8	2					40	1
plēn	45	10	11	3	1	1	15	4	18	2
tēn	43	16			16	8	27	8		
fēs	42	4	11	2	1	1			30	1
zē	40	10			39	9	1	1		
rē	39	6	34	5					5	1
plē	38	10	17	7	3	2			18	1
stē	38	9	15	7					23	2
trēn	37	3	18	2					19	1
gēv	36	1							36	1
fē	35	8	34	7	1	1				
rēnj	35	6			11	3	4	2	20	1
wēt	35	6	10	2	1	1	1	1	23	2
kēt	33	18			27	14	6	4		
sēf	33	8	17	6			1	1	15	1
fēl	32	4	19	3					13	1
rēt	32	11	1	1	7	5	6	4	18	1
tēnd	31	7					31	7		
gē	31	15	5	3	24	11			2	1
wēz	30	8					15	7	15	1
gēnj	29	5	6	2	1	1	1	1	21	1
strēt	28	9	12	5	3	1	2	2	11	1
strēnj	28	5	11	4					17	1
mēks	26	1							26	1
dēn	24	6	21	4	3	2				
dēt	23	4	3	1			6	2	14	1
brēk	22	4	6	2					16	2
tēl	21	6			11	2	7	2	3	2
fēh	21	5	13	3	1	1			7	1
vēl	21	5			16	2	4	2	1	1
sēl	21	7	8	3	1	1	3	1	9	2
nēt	21	16			15	10	6	6		
ēj	21	2	2	1					19	1
tēt	20	8			5	4	15	4		
ēr	20	4	20	4						
plēnz	19	6					17	5	2	1

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
pēn	19	4	3	1			12	2	4	1
pēnt	19	6	18	5					1	1
ēd	19	4	2	1			4	2	13	1
pēd	18	3					2	2	16	1
sēvd	17	1							17	1
mēt	16	7			5	4	11	3		
rēd	16	4	2	2			6	1	8	1
lēd	16	3	1	1			2	1	13	1
trēd	15	5	4	4					11	1
çēnjd	15	3					3	2	12	1
wēst	15	5	6	3					9	2
plēst	14	3					2	2	12	1
tēks	14	2					4	1	10	1
klēm	14	3			1	1	1	1	12	1
nēmz	14	1							14	1
pēj	13	2	5	1					8	1
trēnz	13	1							13	1
grē	13	10	6	6	2	2			5	2
gēt	13	10	1	1	4	4	6	4	2	1
slēv	13	2	8	1					5	1
mēl	13	4	1	1			1	1	11	2
trēt	12	10			7	5	4	4	1	1
vēd	12	8			7	5	5	3		
stēj	12	1							12	1
šep	12	2	1	1					11	1
bēs	11	4	5	2					6	2
gēj	11	1					11	1		
gēnd	11	1							11	1
frēd	11	1							11	1
hēt	11	2	2	1					9	1
rēs	11	3	2	2					9	1
rēz	11	4	4	3					7	1
wēj	11	3	7	2					4	1
	6,126									
i										
in	3284	356	1087	329	14	11	66	14	2117	2
i	3217	819	281	77	1676	547	1260	195		
ig	2353	760			21	13	2332	747		
ri	1625	330	823	160	323	103	479	67		
it	1416	52	26	1	54	25	120	25	1216	1
iz	1286	22	11	1			62	20	1213	1



Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
li	1201	320			44	21	1157	299		
wif	841	12	104	8	4	1	6	2	727	1
di	835	278	673	211	146	59	16	8		
ti	830	227	1	1	241	92	588	134		
bi	621	61	603	50	11	8	7	3		
dis	572	1							572	1
hiz	517	1							517	1
wil	470	7	23	4	2	2			445	1
hwic	454	1							454	1
bin	329	2							329	2
its	293	12					47	10	246	2
him	285	2	51	1					234	1
if	276	4			7	2	6	1	263	1
si	263	96	61	20	106	42	96	34		
dis	261	106	255	101	4	4	2	1		
tri	206	32	8	2	79	22	119	8		
ni	187	68	18	4	106	47	63	17		
is	181	43			130	35	51	8		
lit	152	14	120	6	27	4	4	3	1	1
im	141	70	134	65	6	4	1	1		
ij	141	50			29	15	112	35		
tiv	136	57			29	14	107	43		
did	134	5	23	1	2	1	9	2	100	1
pri	130	51	111	38	19	13				
mi	130	35	9	6	39	23	82	6		
hiq	129	4					85	3	44	1
mit	124	21	1	1	86	12	37	8		
tin	122	24			69	16	49	7	4	1
giv	121	6	59	2	2	2	3	1	57	1
mil	117	11	99	8	7	2			11	1
tiz	115	40	1	1			114	39	†	
biz	114	6	104	4			10	2		
til	108	18			29	11	60	6	19	1
sit	104	12	86	9			4	2	14	1
ik	101	50			4	3	97	47		
fiſ	98	25	10	6	76	18			12	1
hiqk	93	3	19	1	1	1			73	1
id	86	24	2	2	11	3	73	19		
iſ	84	36	34	4	23	18	27	14		
min	83	20	42	10	37	9	4	1		
bil	82	25	25	4	42	20			15	1
hiqz	82	1							82	1
diſ	81	11	5	2	76	9				

† tiz 20/1 should be added here—see note on page 162.

162 *Relative Frequency of English Speech Sounds*

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
lip	77	24	33	7			26	16	18	1
lik	76	7	2	2	1	1	72	3	1	1
liv	71	9	25	3	26	5			20	1
sis	70	20	30	11	15	4	25	5		
wiz	69	2	7	1			62	1		
tik	68	30	4	4	34	8	30	18		
siv	68	21	18	4	4	4	46	13		
mis	68	27	50	23	3	3			15	1
tis	65	22			23	16	22	5	20	† 1
sim	65	12	65	12						
dif	63	13	58	11	5	2				
fi	58	26	12	6	42	17	4	3		
stil	58	1							58	1
sid	58	13			57	12	1	1		
ziſ	57	9			57	9				
big	55	4	4	2	1	1			50	1
vis	55	4	1	1	6	2	48	1		
bli	54	27					54	27		
iqz	53	36					53	36		
sins	52	1							52	1
win	50	7	33	6					17	1
siks	49	3	12	2					37	1
wim	48	2	48	2						
ist	48	19			16	3	32	16		
bild	47	8	36	5	1	1	1	1	9	1
vi	44	16	7	4	29	10	8	2		
sti	44	15	1	1	43	14				
list	43	6	1	1	6	2	15	2	21	1
pi	42	20	10	5	32	15				
siç	41	2	41	2						
ji	40	18	1	1	27	11	12	6		
viz	39	7	4	1	35	6				
çil	39	3	38	2	1	1				
gin	38	3			28	2	10	1		
lim	35	11	23	4	12	7				
pik	34	4	30	3					4	1
vik	32	6	29	4	3	2				
pin	30	3			28	2			2	1
din	30	1	30	1						
nit	30	12	3	1	8	5	19	6		
niſ	30	10			21	8	9	2		
lib	30	10	23	6	7	4				
wiſ	30	3	2	2					28	1

† Should be tiç 20/1, on page 161.

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
izm	30	12					29	11	1	1
fig	29	3	29	3						
fif	28	2	28	2						
sig	28	12	24	10	4	2				
sin	28	15	21	10	4	3	3	2		
lin	28	18	1	1	2	2	25	15		
sil	28	9	9	4	8	2	11	3		
prit	27	4	27	4						
fit	27	10	7	3	1	1	12	5	7	1
sips	27	6					6	4	21	2
nin	27	4					27	4		
mis	27	9	2	2	25	7				
bilt	26	2					2	1	24	1
trik	26	3					25	2	1	1
spir	26	6	21	3	5	3				1
riz	26	6	1	1			25	5		
lij	26	8			20	6	6	2		
his	26	7	25	6	1	1				
il	25	8	6	2	2	1	10	4	7	1
pli	24	10	1	1	10	8	13	1		
triz	24	6					24	6		
brin	23	2	4	1					19	
tivz	23	11					23	11		
diz	22	10	16	7			6	3		
rit	22	6	14	1	1	1	6	3	1	1
si	21	15			20	14	1	1		
jīn	21	5	3	2			18	3		
mid	21	7	16	4			4	2	1	1
wit	21	9	17	6	2	2			2	1
ists	21	10					21	10		
prin	20	2	20	2						
bit	20	6	10	4			1	1	9	1
tij	20	4			1	1	19	3		
fin	20	8	14	4	6	4				
milk	20	2	1	1					19	1
sist	19	9			7	5	12	4		
siq	19	5	18	4					1	1
zi	19	14			14	10	5	4		
krit	19	8	18	7	1	1				
išt	19	10					19	10		
kwik	18	5	15	4					3	1
viz	18	8	16	6	2	2				
skrip	18	8			18	8				

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
miz	18	6	5	2			13	4		
lis	18	6	16	4	1	1	1	1		
trib	17	8	1	1	16	7				
vij	17	4	2	1	15	3				
vil	17	4	14	2	2	1	1	1		
gis	17	5			11	4	6	1		
rid	17	9	4	3	1	1	4	4	8	1
blig	16	8					16	8		
bis	16	5			16	5				
tis	16	8	2	1	14	7				
lis	16	8			11	6	5	2		
kwip	15	2			14	1	1	1		
kil	15	4	12	3					3	1
sprig	15	4	1	1			3	2	11	1
nif	15	6	1	1	14	5				
niz	15	7					15	7		
priz	14	4	14	4						
dring	14	3	7	2					7	1
ki	14	8			6	4	8	4		
fil	14	8	6	3	3	3	1	1	4	1
spi	14	5	5	3	9	2				
siz	14	9	1	1			13	8		
rig	14	3	2	2					12	1
hi	14	7	11	4	3	3				
iv	14	7					14	7		
dik	13	8	8	4	5	4				
kin	13	2	5	1					8	1
givz	13	1							13	1
fiz	13	3	12	2			1	1		
vit	13	3	2	2			11	1		
di	13	5			7	2	6	3		
sik	13	6	2	2			4	3	7	1
nid	13	3					13	3		
driv	12	1	12	1						
kwit	12	7	2	2	3	2	5	2	2	1
fild	12	2					1	1	11	1
strikt	12	5	9	2	2	2	1	1		
rig	12	4	2	2	3	1			7	1
rij	12	7	2	2	9	4			1	1
brij	11	3	1	1			1	1	9	1
tif	11	6			10	5	1	1		
hi	11	4	3	2			8	2		
skil	11	2			1	1			10	1
livd	11	2					1	1	10	1
	28,388									

## Appendix C

165

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
t										
bi	967	8	111	3	2	2	6	1	848	2
hi	696	4	14	3					682	1
wi	537	4	7	2	1	1			529	1
mi	306	13	14	7	35	5			257	1
pi	238	20	197	7	41	13				
si	200	23	70	19	2	2			128	2
ri	193	51	186	46	2	2	1	1	4	2
si	188	1							188	1
i	186	19	173	12	11	5	2	2		
ritz	152	1							152	1
hri	147	11	15	8	2	2			130	1
ytrz	93	1							93	1
hri	75	1							75	1
pis	74	7	10	5					64	2
liv	71	8	6	2	3	3	44	2	18	1
di	63	10	10	5	53	5				
mit	63	5	27	3					36	2
ic	63	1							63	1
nir	61	8	30	4	2	1	6	2	23	1
twi	60	1					60	1		
ytr	60	2	1	1					59	1
dir	58	4	10	3					48	1
iz	56	10	39	4	2	2	13	2	2	2
stl	51	3	1	1					50	2
sid	51	17	1	1	29	10	19	5	2	1
fri	50	6	18	5					32	1
fil	48	2	16	1					32	1
sin	48	5	4	2			3	1	41	2
nid	48	5	16	4					32	1
ktp	47	8	10	3	5	4			32	1
minz	46	1							46	1
lit	44	5			8	2	7	1	29	2
rid	43	5	18	3	1	1			24	1
ti	42	9	1	1	15	5	4	2	22	1
wik	42	8	13	6					29	2
plit	41	6			11	4	30	2		
hwt	38	3	4	1			2	1	32	1
pri	36	18	27	12	8	5			1	1
klir	34	5	11	4					23	1
min	34	6	10	4					24	2
sptk	31	4	14	3					17	1
gri	30	10			15	7	15	3		

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
svd	30	4					30	4		
smz	30	1							30	1
mtr	30	2	18	1					12	1
kris	28	5	1	1	15	2	12	2		
tin	27	9					27	9		
dil	27	5	17	4					10	1
šin	27	2			9	1	18	1		
lid	27	5	24	4					3	1
lv	27	5	25	3			1	1	1	1
fr	26	10	24	8	1	1			1	1
stmd	26	1							26	1
dtd	25	2					24	1	1	1
riç	24	3	7	2					17	1
frid	23	3					3	2	20	1
nl	23	6	18	4			4	1	1	1
it	23	4	15	3					8	1
li	22	11	18	8	4	3				
list	22	2					3	1	19	1
fir	21	5	2	1	2	1	4	2	13	1
strft	21	1							21	1
nldz	21	1							21	1
hi	20	9	18	8	2	1				
slm	20	2							20	2
çif	20	2	6	1					14	1
tiç	19	5	10	4					9	1
dtp	19	5	8	4					11	1
stt	19	3	2	1			8	1	9	1
stz	19	6	1	1			2	2	16	3
çtp	19	4	11	3					8	1
klm	18	5	5	3			4	1	9	1
swt	18	5	7	4					11	1
pltz	17	2	2	1					15	1
sik	17	2	8	1					9	1
stv	17	6			3	3	14	3		
lis	17	4			3	1	12	2	2	1
plzdz	16	1							16	1
wiks	16	2							16	2
krist	15	1					15	1		
ptr	14	5			2	2	11	2	1	1
ptrd	14	2					14	2		
trt	14	6	11	4			1	1	2	1
trfm	14	2			6	1	8	1		
krit	14	4			1	1	13	3		

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
spɪç	13	2	5	1					8	1
rɪçt	13	1							13	1
rɪn	13	3					13	3		
rɪr	13	3	1	1			6	1	6	1
ɪst	13	4	8	2			1	1	4	1
bɪt	12	4	8	2					4	2
trɪ	12	3	3	2					9	1
krɪm	12	1							12	1
spɪd	12	5	5	4					7	1
krɪ	11	6	8	5			3	1		
grɪz	11	2					11	2		
fɪldɪ	11	2					1	1	10	1
sɪs	11	5	1	1	1	1	2	2	7	1
lɪf	11	3	1	1			10	2		
lɪvz	11	2					8	1	3	1
ɪrz	11	2					2	1	9	1
	6,507									
ə										
əv	4001	3					3	2	3998	1
wəz	850	2	11	1					839	1
ən	816	18	39	11	3	3	131	3	645	1
net	596	4	5	2	2	1			589	1
kən	556	224	533	206	23	18				
frem	433	1							433	1
hwet	277	4	17	2			7	1	253	1
kəm	225	89	203	78	22	11				
pəs	194	11	138	6	50	5				
kə	166	51	163	40	3	2				
ə	155	37	144	30	11	7				
əf	96	13	93	12	3	1				
eb	95	32	95	32						
ep	88	20	73	16	15	4				
fər	80	19	55	17	25	2				
bəd	67	10	41	5	26	5				
ət	67	4			9	3	58	1		
prep	66	8	57	6	9	2				
fəl	61	5	61	5						
gət	55	2			5	1			50	1
preb	45	6	44	5	1	1				
spən	45	8	1	1	44	7				
məd	38	11	36	9	2	2				

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
el	35	9	28	2	7	7				
bem	34	6	31	5	3	1				
mør	33	13	16	7	17	6				
nel	32	5	25	2	7	3				
pref	30	9	29	8	1	1				
del	30	3	30	3						
her	28	3			28	3				
nem	28	13	9	4	19	9				
pel	27	10	24	7	3	3				
kest	26	3	5	2					21	1
kør	26	6	25	5	1	1				
pred	24	3	24	3						
klek	23	2					21	1	2	1
prem	22	6	22	6						
pø	22	8	22	8						
døk	22	7	22	7						
køp	21	4	21	4						
pres	20	10	19	9	1	1				
køl	20	9	18	7	2	2				
nøn	20	6	4	3			3	2	13	1
yend	19	1					19	1		
pep	18	8	17	7	1	1				
bøndz	18	2	1	1					17	1
læt	18	6	1	1	6	3	2	1	9	1
wøg	18	2	10	1					8	1
kwel	17	5	13	2	4	3				
hes	16	4	16	4						
øg	16	5	1	1	15	4				
prøg	15	1	15	1						
tør	15	10	8	5	4	3	3	2		
vøl	15	6	14	5	1	1				
vølvd	15	3					15	3		
prøks	14	4	1	1	13	3				
kwøn	13	2	13	2						
møn	13	8	11	6	2	2				
jøb	13	1	13	1						
jør	13	2			13	2				
køj	12	4	12	4						
møk	12	3	2	2	10	1				
øk	12	6	9	4	1	1	2	1		
tøl	11	7	5	4	6	3				
kests	11	1	11	1						
	9,919									



Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
æ										
lær	1136	23	96	19	3	2	2	1	1035	1
el	679	15	210	12	1	1	2	1	466	1
er	602	28	139	22	5	5			458	1
wær	221	3	7	2					214	1
læŋ	147	12	14	4	3	3	36	4	94	1
kæz	145	4	15	2			98	1	32	1
el	72	4	2	2			27	1	43	1
wænt	71	3	27	2					44	1
hæi	68	2	1	1					67	1
ø	61	22	56	18	4	3			1	1
wæ	55	8	54	7	1	1				
smøi	54	3	8	2					46	1
kæi	47	6	6	3	1	1	2	1	38	1
læ	47	8	13	7					34	1
nær	46	3	12	1	6	1			28	1
mærn	46	2	46	2						
sø	43	3	1	1			1	1	41	1
færm	38	10			4	3	16	6	18	1
læs	35	2	15	1					20	1
pær	34	3			34	3				
kær	34	13	27	9	7	4				
kæld	34	2					2	1	32	1
bræt	33	1							33	1
røj	32	1							32	1
hærs	31	4	19	3					12	1
kærd	28	7			27	6			1	1
fæl	28	6	12	2	1	1	4	2	11	1
læst	28	1							28	1
kræs	25	5	3	2			15	2	7	1
kwær	24	3	14	2	10	1				
tæk	23	2	3	1					20	1
strøj	23	5	9	4					14	1
sært	21	2	1	1					20	1
fært	21	5	12	4					9	1
gøn	20	1							20	1
færmð	20	5					14	4	6	1
dræ	18	7	8	4	7	2			3	1
wærd	18	7	1	1	3	3	5	2	9	1
nørh	16	4	5	3					11	1
læz	16	1							16	1
æt	16	1							16	1
brød	14	2					11	1	3	1

170 *Relative Frequency of English Speech Sounds*

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
drən	14	2					1	1	13	1
kərn	14	3	3	2					11	1
tət	12	1							12	1
wənts	12	1							12	1
bət	11	1							11	1
bərn	11	2					1	1	10	1
kət	11	1							11	1
mər	11	6	5	4	6	2				
wərm	11	5	4	2	1	1	1	1	5	1
	4.277									
ν										
but	517	9	9	5	1	1	2	1	505	2
un	466	164	453	155	13	9				
wun	412	8	27	5			2	1	383	2
up	333	2	129	1					204	1
wur*	328	12	20	8	3	3			305	1
us	282	74			35	19	124	54	123	1
sum	277	19	108	12			6	5	163	2
kum	270	26	72	9	32	12	43	4	123	1
uf	258	4	200	3	58	1				
hur*	233	4	11	3					222	1
pur*	194	33	184	28	10	5				
sur*	178	37	167	27	9	8	1	1	1	1
must	165	1							165	1
suc	132	1							132	1
furst*	131	1							131	1
wurk*	124	13	34	8			7	4	83	1
su	120	27	116	23	4	4				
sub	120	36	111	34	9	4				
kun	113	6	113	6						
muç	107	2					3	1	104	1
wurld*	106	2	3	1					103	1
just	100	10	3	1	6	5	5	3	86	1
pub	83	9	79	7	4	2				
fur*	81	23	65	14	7	4	8	4	1	1
guv	78	9	78	9						
duz	69	4	16	3					53	1
nuh	61	1	61	1						
mun	60	1	60	1						
wuns	59	1							59	1

\* For explanation of \* marking, see pp. 46 and 126.

Appendix C

171

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
num	58	7	53	4	3	1	2	2		
tur*	57	32	7	7	48	23	2	2		
gun	56	4	6	2			6	1	14	1
ur*	53	11	51	9	1	1			1	1
frunt	51	5			3	2	2	2	46	1
kuv	49	17	20	8	29	9				
dus	48	7			41	5	7	2		
struk	48	11	1	1	39	9			8	1
turn*	47	8	7	2	5	3	18	2	17	1
suk	47	10	45	9					2	1
mug	46	1					46	1		
kur*	45	20	27	9	13	9	5	2		
nuf	44	1					44	1		
luv	43	5	11	4					32	1
yug	43	3	2	2					41	1
turnd*	41	3					11	2	30	1
dun	40	1							40	1
kul	40	13	17	7	23	6				
trub	37	6	37	6						
hur*	37	8	37	8						
zult	37	3			9	2	28	1		
jus	37	12	31	7	4	3	2	2		
nus	36	12	12	7	2	1	22	4		
munhs	35	2							35	2
vur*	34	17	11	7	23	10				
kumz	32	3					9	2	23	1
gurl*	32	1							32	1
trust	31	9	8	4	2	2	4	2	17	1
muf	31	6	30	5	1	1				
run	31	4	12	2			1	1	18	1
hurd*	31	5	2	2			4	1	25	2
mur*	30	14	18	10	10	3	2	1		
munh	28	2	4	1					24	1
kus	27	11	17	6	3	3	7	2		
sus	27	16			8	5	19	11		
hun	26	4	26	4						
buv	25	1					25	1		
um	25	15	4	2			20	12	1	1
sun	24	7	10	5					14	2
kut	23	4	5	3					18	1
gunz	23	1							23	1
sug	23	6	23	6						
juj	23	4	14	3					9	1

172 *Relativ Frequency of English Speech Sounds*

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
wurf*	23	2	1	1					22	1
duk	22	12			21	11			1	1
hurd*	22	1							22	1
ut	22	7	21	6			1	1		
ukts	21	1					21	1		
tug	20	4	7	3					13	1
zurv*	20	7			6	3	14	4		
strukt	19	7			16	5	3	2		
sus	19	10	18	9			1	1		
wurd*	19	1							19	1
gurlz*	18	1							18	1
furm*	18	7	2	2	1	1	5	3	10	1
wurdz*	18	1							18	1
turnz*	17	1							17	1
flus	17	1							17	1
nun	17	1							17	1
tunz	16	1							16	1
fun	16	5	12	4					4	1
suf	16	3	16	3						
lurnd*	16	2					1	1	15	1
ul	16	7	14	5	2	2				
dukt	15	3			5	2	10	1		
jur*	15	5	15	5						
lurn*	15	2	2	1					13	1
surv*	14	3	1	1			2	1	11	1
surç*	14	7	10	4	1	1	1	1	2	1
surñ*	14	2			8	1	6	1		
mul	14	7	12	5	2	2				
brud	13	3	13	3						
wurks*	13	2					1	1	12	1
urh*	13	2	2	1					11	1
purts*	12	1					12	1		
blud	12	4	5	3					7	1
burn*	12	3	5	1	2	1			5	1
kup	12	3	8	2					4	1
vurt*	12	9			9	6	3	3		
sump	12	3	1	1	11	2				
rub	12	3	10	2					2	1
bur*	11	7	10	6					1	1
tus	11	4					11	4		
fund	11	1							11	1
vers*	11	5	4	1	1	1	5	2	1	1
strug	11	3	11	3						

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
stur*	11	5	9	4					2	1
ruſ	11	4	1	1	1	1	1	1	8	1
wurs*	11	1							11	1
worldz*	11	2							11	2
	7.773									
ə										
ə	3167	341	859	138	376	188	24	14	1908	1
ər	2084	431			631	193	1453	238		
lən	923	277			33	20	890	257		
tər	575	116			243	54	332	62		
əl	570	127			168	47	402	80		
ən	386	113			101	36	285	77		
ərz	379	158					379	158		
dər	290	50			85	32	205	18		
vər	251	47	1	1	71	40	179	6		
pər	235	57	115	30	33	21	27	5	60	1
lənz	212	90					212	90		
bər	142	23			23	9	119	14		
ərn	132	18			76	8	56	10		
mə	129	36	96	22	29	10	4	4		
kəl	127	44			28	12	99	32		
mən	126	28			7	3	119	25		
ərd	124	30			3	3	121	27		
təl	119	26			17	10	102	16		
tərz	105	48					105	48		
ənz	104	25					104	25		
fər	97	6			1	1	96	5		
rə	75	20	31	4	42	15	2	1		
lər	73	17			12	4	61	13		
pə	72	20	10	4	62	16				
yən	67	12			4	2	63	10		
tə	63	33			58	28	5	5		
nəl	63	21			18	6	45	15		
pəs	61	3			16	1	45	2		
ləl	56	19			9	5	47	14		
bərz	53	8					53	8		
sər	52	14	4	2	11	6	37	6		
ək	49	5	28	1	20	3	1	1		
wərd	47	16			2	2	45	14		
əns	41	22			3	3	38	19		
tənt	40	8					40	8		

174 *Relative Frequency of English Speech Sounds*

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
sən	40	7			22	4	18	3		
yənz	38	6					38	6		
təns	36	7					36	7		
kə	36	20	22	8	14	12				
jərz	36	5					36	5		
əlz	36	11					36	11		
çən	35	7			2	2	33	5		
əd	35	3					35	3		
dərz	33	9					33	9		
gər	33	11			3	2	29	8	1	1
jər	30	10			8	5	22	5		
tərd	29	13					29	13		
mər	29	8			12	2	17	6		
dərd	27	11					27	11		
gən	27	6			26	5	1	1		
sərz	27	5					27	5		
zənd	27	1					27	1		
nə	27	18			27	18				
nər	27	9			11	5	16	4		
ənd	26	2					26	2		
rəl	25	8			9	3	16	5		
ət	25	7			14	1	11	6		
də	24	11			16	7	8	4		
dəm	24	4					24	4		
fə	24	10	18	7	6	3				
çən	24	10			2	2	22	8		
fər	23	8			19	5	4	3		
nəns	22	6			2	2	20	4		
stəns	21	3			6	1	15	2		
yər	21	5			3	1	18	4		
ənt	21	14			4	4	17	10		
ərt	21	1					21	1		
trəl	20	2					20	2		
kwəl	20	2			10	1	10	1		
məl	20	6			1	1	19	5		
stənt	18	4			9	2	9	2		
əz	18	2					18	2		
çənz	17	2					17	2		
bərd	16	5					16	5		
fərt	16	4			5	2	11	2		
vəl	16	5			1	1	15	4		
sə	16	11	11	7	5	4				
jən	15	2					15	2		

## Appendix C

175

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
la	15	10								
æpt	15	4	3	3	9	5	3	2		
træ	14	8					15	4		
tam	14	4	2	2	3	3	9	3		
gæl	14	4			10	3	4	1		
sanz	14	2			1	1	13	3		
pærz	13	3					14	2		
tæn	13	5					13	3		
zændz	13	1			6	2	7	3		
hæn	12	1					13	1		
væ	12	8	4	2	8	6	12	1		
hær	11	1	11	1						
	12,350									
o										
o	707	186	328	50	247	114	73	19	59	3
no	478	24	42	14	11	6	2	2	423	2
so	446	35	37	15	104	18			305	2
on	276	6	200	4			1	1	75	1
for	228	24	34	18	1	1	157	3	36	2
pro	226	84	210	75	12	8			4	1
mor	221	4	7	1			2	2	212	1
to	179	46	46	7	125	35	8	4		
go	179	12	61	2	5	5	40	4	73	1
most	155	7	2	1			48	5	105	1
po	153	39	100	15	52	23	1	1		
mo	116	39	75	18	40	20	1	1		
foz	104	1							104	1
old	84	4	9	3					75	1
port	77	17	3	3					3	1
hom	69	6	6	5	25	9	46	4	63	1
dont	67	1							67	1
hol	61	8	10	3			1	1	50	4
fo	60	4					19	2	41	2
lo	60	21	28	14	3	2	13	4	16	1
fors	59	9	1	1	31	6	4	1	23	1
sol	58	8	52	7					6	1
hold	51	13	14	3	5	3	10	6	22	1
lon	50	4	4	2			21	1	25	1
fo	48	6	16	4					32	2
por	47	17	17	8	24	7			6	2
kors	46	4	2	2			7	1	37	1





# Appendix C

177

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
ston	12	2								
lon	12	1					1	1	11	1
sol	12	2	12	2					12	1
fo	11	9	10	8						
fon	11	3							1	1
vo	11	5	2	2	8	2	9	2	2	1
ho	11	5	10	4			1	1		
									1	1
	5,418									
"										
tu	139	8	139	8						
wud	281	7	24	5						
yu	268	115	17	10	227	101	24	4	257	2
ful	224	66	15	5	71	22	103	38		
gur	161	37			19	8	142	29	35	1
kud	147	2	14	1						
u	127	30			109	27			133	1
sud	119	2	1	1			17	2	1	1
gud	108	2	2	1					118	1
put	73	3	3	1					106	1
wu	57	2	56	1	1	1	7	1	63	1
luk	56	5	25	3						
ur	52	9					1	1	30	1
gu	47	18			7	4	45	5		
tuk	40	1			45	17	2	1		
yur	37	4							40	1
buks	34	1	13	2			24	2		
stud	28	4							34	1
gurz	26	9					12	3	16	1
gu	23	4			23	4	26	9		
fut	19	7	3	3	1	1				
gurd	19	5					2	2	13	1
yurz	19	2					19	5		
buk	18	4					19	2		
hud	18	8	5	1			2	2	11	1
gudz	17	1					18	8		
flu	16	5			16	5			17	1
lukt	16	2								
yut	16	7					3	1	13	1
stru	11	3			11	4	5	3		
ud	11	2			11	3				
							11	2		
	2,393									

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
<i>ī</i>										
tū	3318	10			2	1	189	6	3127	3
yū	862	23	52	18	9	3	26	1	775	1
hū	252	3	4	2					248	1
dū	239	2	36	1					203	1
yūr	230	2							230	2
hru	96	3	14	1					82	2
yūr	56	1							56	1
yūz	54	6	19	4			3	1	32	1
fūd	53	1							53	1
fūr	53	11	12	2	14	6	6	2	21	1
sūn	48	2	6	1					42	1
yūs	48	7	17	4			3	2	28	1
yūzd	45	1							45	1
hūz	42	1							42	1
mūv	38	8	19	4	4	2	4	1	11	1
nūn	37	3					32	2	5	1
trū	30	1							30	1
hūm	28	1							28	1
trūps	26	1							26	1
skūl	25	3	2	2					23	1
pūr	24	2	1	1					23	1
rūm	24	4	1	1			2	2	21	1
klūd	23	7			15	4	8	3		
prūv	21	9	1	1	12	6	3	1	5	1
trūh	21	1							21	1
stūpt	19	1							19	1
mūvd	18	2					4	1	14	1
jū	16	6	15	5	1	1				
klū	14	7			14	7				
rūl	13	3	7	2					6	1
yūn	13	3	12	2	1	1				
tūr	12	8	9	6			1	1	2	1
prūvd	11	3					7	2	4	1
blū	11	1							11	1
lūz	11	3	3	2					8	1
wūnd	11	3	9	2					2	1
	5,676									
<i>ai</i>										
aur	378	4	21	2					357	2
aut	332	29	43	25			85	3	204	1

Syllable	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
na	210	1							210	1
bau	153	1					153	1		
hai	152	5	23	2			5	2	124	1
dau	99	4	3	2			1	1	95	1
pai	77	8	76	7	1	1				
hais	70	11	12	6			5	4	53	1
faud	64	6	1	1	4	2	4	2	55	1
kau	52	13	50	11	2	2				
maut	43	7	1	1	2	2	37	3	3	1
hai	40	2	40	2						
rau	39	5	1	1	2	1	22	2	14	1
kaut	37	9	5	3	3	3	45	2	4	1
auz	34	3							34	3
pauz	26	1							26	1
dau	26	5	3	2	5	2			18	1
grau	25	3					2	2	23	1
flau	25	1							25	1
pau	24	3	1	1	1	1			22	1
hau	23	4	15	3	8	1				
nau	22	6			19	4	3	2		
sau	21	3	5	2					16	1
maut	20	3					20	3		
tau	19	2	1	1					18	1
krud	15	3	6	2					9	1
sau	11	4	5	3					6	1
lau	11	4	3	2			6	1	2	1
	2,048									
ø										
pent	51	9	6	1	10	5	3	2	32	1
béz	29	2							29	2
lé	25	6	13	3	12	3				
plé	22	7			17	6	5	1		
él	20	2	1	1					19	1
yés	19	4	4	1	2	1	1	1	12	1
bé	15	3	1	1			1	1	13	1
stre	15	4			6	3	9	1		
jé	14	3			3	1	3	1	8	1
çés	11	2	1	1					10	1
	221									

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
<i>a</i>										
<i>ä</i>	1259	26	84	22	1	1	1	1	1173	2
<i>bä</i>	644	11	10	5			7	4	627	2
<i>mä</i>	341	6	45	5					296	1
<i>täm</i>	222	10	2	1			15	8	205	1
<i>rät</i>	143	12	27	7	2	2	2	1	112	2
<i>läk</i>	133	10	12	4	1	1	7	4	113	1
<i>säd</i>	105	21	2	2	15	6	45	12	43	1
<i>hä</i>	100	13	53	11					47	2
<i>läf</i>	91	2	2	1					89	1
<i>mät</i>	85	6	7	4			1	1	77	1
<i>hwäl</i>	80	2					2	1	78	1
<i>nät</i>	64	7	2	1	1	1	14	3	47	2
<i>fät</i>	62	3	41	2					21	1
<i>lät</i>	61	17	17	5	9	4	17	7	18	1
<i>äz</i>	61	17			7	5	21	11	33	1
<i>fänd</i>	60	6	5	1			3	3	52	2
<i>känd</i>	53	4	18	2			4	1	31	1
<i>län</i>	53	2			1	1			52	1
<i>hwä</i>	51	1							51	1
<i>fäv</i>	49	1							49	1
<i>sä</i>	48	27	29	15	18	11	1	1		
<i>mänd</i>	48	5	2	1	6	2			40	2
<i>fä</i>	45	17	30	6	5	5	10	6		
<i>trä</i>	45	11	27	8	4	2			14	1
<i>präs</i>	43	3	13	2					30	1
<i>tämz</i>	42	3					15	2	27	1
<i>plä</i>	39	8			6	3	33	5		
<i>lä</i>	39	20	20	10	11	6	3	3	5	1
<i>dräv</i>	37	4	13	3					24	1
<i>fäd</i>	37	18			2	2	35	16		
<i>äzd</i>	37	18					37	18		
<i>kwär</i>	35	6			23	4	12	2		
<i>tär</i>	34	7	1	1	17	3	15	2	1	1
<i>väd</i>	34	6	13	1	3	2	17	2	1	1
<i>sät</i>	32	11	1	1	7	4	5	4	19	2
<i>gåld</i>	32	4	7	2			1	1	24	1
<i>prä</i>	30	9	26	6	4	3				
<i>rä</i>	30	16	21	12	6	2			3	2
<i>äm</i>	30	1							30	1
<i>kwät</i>	28	2			1	1			27	1
<i>vä</i>	28	11	26	9	2	2				
<i>mdlz</i>	28	1							28	1



182 *Relativ Frequency of English Speech Sounds*

<i>Syllable</i>	Total		Initial		Medial		Final		Word	
	Oc	It	Oc	It	Oc	It	Oc	It	Oc	It
<i>h</i>										
nü	182	17	29	8	4	3	41	4	128	2
fü	100	11	4	9	2	1			54	1
mü	55	19	24	8	31	11				
dü	51	12	29	7	4	3	3	1	15	1
bü	49	10	30	4	19	6				
dür	47	4	41	1	3	2	3	1		
düs	39	13			14	8	24	4	1	1
hü	35	10	31	7	3	2			1	1
kü	34	18	6	3	26	14			2	1
vü	34	4	1	1			4	2	29	1
sü	34	24	27	18	4	4	2	1	1	1
nüz	33	7	10	2			5	4	18	1
lü	31	18	6	5	25	13				
tü	28	11	1	1	27	10				
kür	28	7			13	4	14	2	1	1
düst	27	5					27	5		
tüd	24	5					24	5		
süt	21	4	7	2			2	1	12	1
süm	20	5			14	3	6	2		
lüt	20	7			6	3	13	3	1	1
tüt	19	8			8	4	11	4		
pür	17	3	6	2					11	1
tün	17	2			16	1			1	1
gü	17	10	1	1	14	7	2	2		
tür	11	5			5	3	6	2		
	973									

## Appendix D

## Letter frequencies

Table D1 gives the relativ frequency of the letters of English, arranged in alfabetic order. The column heded *Occurrences* givs the total number of times each letter occurrd, while the column heded *Items* givs the number of different places in which each occurrd. Below the totals, the occurrences of the apostrofe and hifen in these 100,000 words ar similarly shown. Only 7 difthongal or diacritic letters occurrd in the entire 100,000 words ; namely æ 2, ô 2, ö 2, and i 1.

Table D2 givs the same data arranged in order of frequency, plus an analisis showing the number of occurrences of each letter initially, medially, or finally in words, or as a word by itself.

Comparing Table D2 with the data on page 133 it appears that :

3	letters make up over 25%	of the total letters.
6	"	50%
11	"	75%

Comparison with the data of Table 17, showing a total of 365,419 occurrences for the same 100,000 words, shows an excess of 19 87% cf letters over sounds. In other words, as compared with a simple one sign one sound fonetic spelling, 1 letter in 6 of our present conventional spelling is quite superfluous, involving a direct waste, in the mere cost of such superfluous writing and printing alone, of over \$600,000,000 annually in the United States alone.

*Addendum—1950.* The foregoing estimate of \$600,000,000 annual waste was based on printing [and writing] costs and quantities as of the 1920 United States census. On the basis of the 1950 census figures, not yet available, this annual waste will, beyond question, largely exceed \$1,000,000,000 a year.

TABLE DI RELATIVE FREQUENCY OF LETTERS IN ENGLISH  
ARRANGED IN ALFABETIC ORDER

Letter	%	Occur- rences	Items
a	7.88	34,536	5,352
b	1.56	6,838	1,207
c	2.68	11,747	3,148
d	3.89	17,046	3,394
e	12.68	55,465	9,493
f	2.56	11,199	1,164
g	1.87	8,191	2,079
h	5.73	25,138	1,634
i	7.07	30,955	6,058
j	0.10	421	117
k	0.60	2,610	526
l	3.94	17,261	3,668
m	2.44	10,678	1,916
n	7.06	30,902	5,480
o	7.76	33,993	4,305
p	1.86	8,162	2,154
q	0.09	403	122
r	5.94	26,051	5,569
s	6.31	27,642	6,069
t	9.78	42,815	5,366
u	2.80	12,285	2,448
v	1.02	4,481	907
w	2.14	9,396	712
x	0.16	687	214
y	2.02	8,837	1,189
z	0.06	284	131
Totals	100.00	438,023	74,422
		674	159
		28	9



TABLE D2 RELATIV FREQUENCY OF LETTERS IN ENGLISH,  
ARRANGED IN ORDER OF FREQUENCY, WITH ANALYSIS OF  
POSITION OF OCCURRENCE IN WORDS

Letter	%	Occur rences	Items	Initial	Medial	Final	Word	Letter
e	12.68	55,465	9,493	2,123	32,472	20,870		e
t	9.78	42,815	5,366	17,182	15,210	10,423		t
a	7.88	34,536	5,352	9,477	22,791	148	2,120	a
o	7.76	33,993	4,305	7,764	21,608	4,617	4	o
i	7.07	30,955	6,058	6,691	23,094	15	1,155	i
n	7.06	30,902	5,480	2,317	20,521	8,064		n
s	6.31	27,642	6,069	6,119	9,508	12,015		s
r	5.94	26,051	5,569	2,165	17,734	6,152		r
h	5.73	25,138	1,634	4,916	17,772	2,450		h
l	3.94	17,261	3,668	2,118	12,155	2,988		l
d	3.89	17,046	3,394	2,756	4,227	10,063		d
u	2.80	12,285	2,448	1,214	10,278	793		u
c	2.68	11,747	3,148	4,327	7,170	250		c
f	2.56	11,199	1,164	4,037	2,550	4,612		f
m	2.44	10,678	1,916	4,010	5,198	1,470		m
w	2.14	9,396	712	6,839	1,604	953		w
y	2.02	8,837	1,189	1,454	971	6,412		y
g	1.87	8,191	2,079	1,588	3,588	3,015		g
p	1.86	8,162	2,154	3,476	4,213	473		p
b	1.56	6,838	1,207	4,788	2,006	44		b
v	1.02	4,481	907	537	3,944			v
k	0.60	2,610	526	436	1,373	801		k
x	0.16	687	214		626	61		x
j	0.10	421	117	256	165			j
q	0.09	403	122	171	232			q
z	0.06	284	131	15	265	4		z
Totals	100.00	438,023	74,422	96,776	241,275	96,693	3,279	
		674	159	17	644	13		
		28	9		25	3		

**Addenda and errata**

Number Page

①

5

Two other word counts, published since the first edition of this study, deserve special mention :

Horn, Ernest, *A basic writing vocabulary*, University of Iowa Monographs in Education, First series, No. 4, Iowa City, 1926.

This list, subtitled "10,000 words most commonly used in writing," altho subject to several serious criticisms which substantially limit its usefulness, is nevertheless the best single list of its type yet published, and the one to which I have chiefly turned for a substantially longer word count list than afforded by my own investigation. Its two most serious deficiencies are : failure to make an actual count of 372 of the commonest words, together making up a presumptive 60% of all running words investigated, which are estimated on the basis of an earlier and much smaller study which lumped together the data from several still smaller and diversely planned and executed investigations ; and failure to report actual unweighted frequencies—each published figure having been multiplied by an unstated factor from 1 to 5, dependent on the number of different categories of counted material in which the word occurred. In consequence, available data indicate that the 9 commonest words (which make up over 25% of my own study) are under-estimated by about 50% ; and none of the published data can be used as a basis for determining the frequency of occurrence of syllables or sounds.

Horn, Ernest, and Peterson, Thelma, *The basic vocabulary of business letters*, Gregg, 1943.

This list deals with 1,436,000 running words of business correspondence which were a part of the 5,137,000 running words which formed the basis of the Horn list reviewed above. It suffers from the same defect of failing to count 372 of the commonest words, and under-estimating the commonest of these as much as 50% ; but in other respects is a very valuable source of data for the limited field investigated. The alphabetic list gives all words found in the material, not merely the most frequent, with both weighted and unweighted frequencies ; and is supplemented by a list of over 5,000 most-used words (out of a little less than 15,000 different words) in order of frequency.

Number Page

- (2) 17 The 500 commonest words here reported wil form over 66%.
- (3) 19 For 328 been read 329 been.
- 31 " 328 " " 329 "

- (4) 20 Add 85 today.
- 20 Omit 68 today.
- 25 Omit 17 to-day.
- 40 For 68 today & 17 to-day read 85 today.

- (5) 22 Add 40 light/7
- 26 Omit 18 light.
- 36 For 18 light read 40 light/7.

- (6) 29 Add 11 doctrine/3.

33 " 11 "

- (7) 51 For ŝarz\* 11 read ŝarz\* 7 (ŝerz 4).

68 " " " " "

106 " " " " "

- (8) 52 For ter 30 read ter 29.

62 " " " "

114 " " " "

- (9) 57 For ĥrū 96 read ĥrū 94.

69 " " " "

117 " " " "

- (10) 135 This alfabet, which was adopted by the Simplified Spelling Board in 1922, was used in this volume publisht in 1923. In 1928, this SSB alfabet was superseded by the SRA (Spelling Reform Association) fonetic alfabet, prepared by a joint committee of the Spelling Reform Association and the Simplified Spelling Board with the aid of Frederick W. Goudy, the foremost type designer of his generation. Copies of the SRA alfabet may be obtained from the Simpler Spelling Association, Lake Placid Club, N.Y.

- (11) 145 Add (midst -dst).  
This changes the figure 181 on pages 139, 140, 146, and 148 to 182.

- (12) 147 Add -dst (see note (11) immediately above).